EPA Superfund
Explanation of Significant Differences

SOMERSWORTH SANITARY LANDFILL
SUPERFUND SITE EPA ID: NHD980520225
SOMERSWORTH, NH

May 2013

Explanation of Significant Differences
Somersworth Sanitary Landfill
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SOMERSWORTH SANITARY LANDFILL
MAY 2013

SITE NAME AND LOCATION

Somersworth Sanitary Landfill Superfund Site, Somersworth, New Hampshire

STATEMENT OF PURPOSE

This decision document sets forth the basis for the determination to issue the attached Explanation of Significant Differences (ESD) for the Somersworth Sanitary Landfill Superfund Site (the Site), in Somersworth, New Hampshire.

STATUTORY BASIS FOR ISSUANCE OF THE ESD

Section 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. Section 9617(c), requires that, if the remedial action being undertaken at a site differs significantly from the Record of Decision (ROD) for that site, EPA shall publish an explanation of the significant differences and the reasons such changes were made. The National Contingency Plan (NCP), 40 C.F.R. § 300.435(c)(2)(i), and Office of Solid Waste and Emergency Response (OSWER) Directive 9355.3-02, indicate that an ESD, rather than a ROD amendment, is appropriate where the adjustments being made to the ROD are significant but do not fundamentally alter the remedy with respect to scope, performance, or cost. EPA has determined that the adjustments to the June 21, 1994 ROD provided in this ESD are significant but do not fundamentally alter the overall remedy for the Somersworth Sanitary Landfill Superfund Site, with respect to scope, performance, or cost. Therefore, this ESD is being properly issued.

In accordance with Section 300.825(a) (2) of the NCP, this ESD will become part of the Administrative Record for the Site and will be available for public review at both the EPA Region 1 Records Center in Boston, Massachusetts and the Somersworth Public Library in Somersworth, New Hampshire.

OVERVIEW OF THE ESD

This ESD documents the following additions and changes to the CERCLA remedy, as presented in the June 21, 1994 ROD:

1. Adding measures that have already been taken to control landfill gas emissions (*i.e.* construction of a passive venting system and the implementation of a landfill gas monitoring program). The venting system has been designed and constructed, and will be maintained to reduce the soil gas levels of methane beyond the point of compliance at the landfill (see Figure 2) to levels below the regulatory limit of 50% of the lower explosive limit (2.5% methane), as required under state landfill gas control standards incorporated into the remedy through this ESD.

2. Changing the requirement that a fence be installed around the landfill to restrict access. The ROD required that a fence be installed around the landfill to restrict access to contaminated media and that the specific area requiring such fencing be determined during the design of the remedial action. During the design, it was determined that fencing would not be installed around the entire Site but only around the control box and the underground vault for the groundwater extraction system. While fencing was installed around these components, it was taken down in 2006 when construction work was conducted on the vault to upgrade the water-tight seal of the vault. The vault and electrical box are currently locked to prevent access to these components. Given that the locks are preventing tampering with these components and the fact that erecting a fence would draw attention and perhaps entice trespassing and vandalism, EPA has decided to forego the requirement for fencing.

3. Changing the use restrictions established under the ROD to permit passive recreational use of the entire Site, subject to Institutional Controls ("ICs") that will protect the landfill cover and prevent exposure to the underlying landfill contamination. Investigations of soil cover material within areas of the landfill that were covered prior to the implementation of the CERCLA remedy (the Pre-CERCLA Cover) found that the Pre-CERCLA Cover material did not contain any soil contaminant levels that exceeded background levels and which posed a risk. Based on this information, EPA has determined that limited passive recreation within the Site can be carried out without posing a human health risk.

4. Adding a requirement that the Pre-CERCLA Cover area meet the same protectiveness standards as areas of the Site covered as part of the ROD remedy (the ROD Cover). A survey of the Pre-CERCLA Cover thickness was conducted to determine if there was any exposure to the underlying landfill material. In a few limited areas the ROD cover thickness standards were not met, but it was determined that there still was enough cover material present to prevent any direct exposure to the underlying landfill debris. Additional cover material will be added to these areas so that the cover across the entire landfill area of the Site meets the ROD's one-foot thick cover standard to prevent direct contact with contaminated soil and landfill debris.

5. Establishing land use restrictions for soil, in the form of an Activity and Use Restriction (AUR), for the entire landfill cover area over the Site and a Soil Management Plan (SMP), as additional ICs. The AUR will acknowledge and incorporate EPA's decision, set forth in this ESD, that: 1) passive recreation within the Site consistent with the level of activity that has historically occurred within the Pre-CERCLA Cover area as described herein, and 2) appropriate non-recreation reuse of the Site (e.g. solar powered co-generation) as approved by EPA and NHDES, may be permitted and will not pose a risk to human health or the environment as long as AUR requirements for the activity are met.

6. Updating of Applicable or Relevant and Appropriate Requirements (ARARs) cited in the 1994 ROD both to include the revised State and Federal standards, and to identify additional landfill/soil standards that were not specifically identified in the 1994 ROD (Attachment 2).

7. Incorporating measures that were taken to evaluate the potential for vapor intrusion in the residential areas along Blackwater Road as part of the remedial action.

This document formally incorporates these aforementioned measures into the CERCLA remedy. The State of New Hampshire has reviewed and commented on this ESD and concurs with its issuance. (Document # 70006552 in the Administrative Record).

DECLARATION

For the foregoing reasons, by my signature below, I approve the issuance of an Explanation of Significant Differences for the Somersworth Sanitary Landfill Superfund Site in Somersworth, New Hampshire, and the changes stated therein.

5/30/13
Date

James T. Owens III, Director
Office of Site Remediation and Restoration
U.S. Environmental Protection Agency Region 1 New England

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EXPLANATION OF SIGNIFICANT DIFFERENCES
SOMERSWORTH SANITARY LANDFILL SUPERFUND SITE
SOMERSWORTH, NEW HAMPSHIRE

I. INTRODUCTION

A. Site Name and Location

Site Name: Somersworth Sanitary Landfill Superfund Site (the Site)

Site Location: City of Somersworth, Strafford County, New Hampshire
(See figure 1 in Attachment 1.)

B. Lead and Support Agencies

Lead Agency: United States Environmental Protection Agency (EPA)

Support Agency: New Hampshire Department of Environmental Services (NHDES)

C. Legal Authority

Under Section 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9617 (c), 40 C.F.R. § 300.435(c) of the National Contingency Plan (NCP), and Office of Solid Waste and Emergency Response (OSWER) Directive 9355.3-02, if EPA determines that differences in the remedial action significantly change but do not fundamentally alter the remedy selected in the Record of Decision (ROD), dated June 21, 1994, for the Site with respect to scope, performance, or cost, EPA shall publish an Explanation of Significant Differences (ESD). The ESD shall explain the differences between the remedial action being undertaken and the remedial action set forth in the ROD and the reasons such changes are being made.

D. Summary of Circumstances Necessitating this Explanation of Significant Differences

Upon completion of the Second Five Year Review for the Site in September 2010, several issues were identified where specific actions had been taken on-site, yet they had not been formally recorded as part of the remedy in a CERCLA decision document. Other issues identified were related to changes in ARARs stemming from NHDES revisions to its regulatory system and promulgated standards. These changes in regulatory nomenclature and State standards also needed to be formally recorded as part of the remedy.

Hence, this ESD will serve as the CERCLA decision document to record the following changes to the remedy that do not fundamentally deviate in terms of scope, performance or cost, from the remedy described in the 1994 ROD:

1. Adding measures that have already been taken to control landfill gas emissions (*i.e.* construction of a passive venting system and the implementation of a landfill gas monitoring program). The venting system has been designed and constructed, and will be maintained to reduce the soil gas levels of methane beyond the point of compliance at the landfill (see Figure

2) to levels below the regulatory limit of 50% of the lower explosive limit (2.5% methane), as required under state landfill gas control standards incorporated into the remedy through this ESD.

2. Changing the requirement that a fence be installed around the landfill to restrict access. The ROD required that a fence be installed around the landfill to restrict access to contaminated media and that the specific area requiring such fencing be determined during the design of the remedial action. During the design, it was determined that fencing would not be installed around the entire Site but only around the control box and the underground vault for the groundwater extraction system. While fencing was installed around these components, it was taken down in 2006 when construction work was conducted on the vault to upgrade the water-tight seal of the vault. The vault and electrical box are currently locked to prevent access to these components. Given that the locks are preventing tampering with these components and the fact that erecting a fence would draw attention and perhaps entice trespassing and vandalism, EPA decided to forego the requirement for fencing.

3. Changing the use restrictions established under the ROD to permit passive recreational use of the entire Site, subject to Institutional Controls (ICs), and maintenance and monitoring, that will protect the landfill cover and prevent exposure to the underlying landfill contamination. Investigations of soil cover material within areas of the landfill that were covered prior to the implementation of the CERCLA remedy (the Pre-CERCLA Cover) found that the Pre-CERCLA Cover material did not contain any soil contaminant levels that exceeded background levels and which posed a risk. Based on this information, EPA determined that limited passive recreation within the entire Site can be carried out without posing a human health risk.

4. Adding a requirement that the Pre-CERCLA Cover area meet the same protectiveness standards as areas of the Site covered as part of the ROD remedy (the "ROD Cover"). A survey of the Pre-CERCLA Cover thickness was conducted to determine if there was any exposure to the underlying landfill material. In a few limited areas the ROD cover thickness standards were not met, but it was determined that there still was enough cover material present to prevent any direct exposure to the underlying landfill debris. Additional cover material will be added to these areas so that the cover across the entire landfill area of the Site meets the ROD's one-foot thick cover standard to prevent direct contact with contaminated soil and landfill debris (Figure 3 in Attachment 1).

5. Establishing land use restrictions for soil, in the form of an Activity and Use Restriction (AUR), for the entire landfill cover area over the Site and a Soil Management Plan (SMP), as additional ICs. The AUR will acknowledge and incorporate EPA's decision, set forth in this ESD, that: 1) passive recreation within the Site consistent with the level of activity that has historically occurred within the Pre-CERCLA Cover area as described herein, and 2) appropriate non-recreation reuse of the Site (*e.g.* solar powered co-generation) as approved by EPA and NHDES, may be permitted and will not pose a risk to human health or the environment as long as AUR requirements for the activity are met.

6. Updating the ARARs cited in the 1994 ROD both to include the revised State and Federal standards, and to identify additional landfill/soil standards that were not specifically identified in the 1994 ROD (Attachment 2).

7. Incorporating measures that were taken to evaluate the potential for vapor intrusion in the residential areas along Blackwater Road as part of the remedial action.

E. Availability of Documents

This ESD and supporting documentation shall become part of the Administrative Record for the Site. The ESD, supporting documentation for the ESD, and the Administrative Record are available to the public at the following locations and may be reviewed at the times listed below.

U.S. Environmental Protection Agency Records Center
5 Post Office Square, Suite 100
Boston, MA 02109-3912
Telephone: (617) 918-1440
Fax: (617) 918-1223
E-mail (r1.records-osrr@epa.gov)

Open Monday through Thursday from 9:30 AM – 3:30 PM, excluding federal holidays.

Somersworth Public Library
25 Main Street
Somersworth, N. H. 03878
Telephone: (603) 692-4587
Fax: (603) 692-9110

Tuesday - Thursday 11 am to 7 pm
Friday - Saturday 9 am to 5 pm
Saturday (September - May) 9 am to 5 pm
Saturday (June - August) 9 am to 1 pm

II. SUMMARY OF SITE HISTORY, CONTAMINATION PROBLEMS AND SELECTED REMEDY

A. Site History and Contamination Problems

The Somersworth Sanitary Landfill Superfund Site (the Site) is located on the north side of Blackwater Road approximately one mile southwest of the center of the City of Somersworth (the City) in Strafford County, New Hampshire as shown on the Site Location Map in Attachment 1. The dominant Site feature is a former sanitary landfill that extends over an area of approximately 26 acres. The extent of the property currently owned by the City at and around the landfill is shown on Figure 2.

The landfill is located entirely within the Peters Marsh Brook surface water drainage basin. The brook flows northwesterly through the wetlands at the Site into Tate's Brook, which in turn flows into the Salmon Falls River which is located about one mile east of the Site.

The Site is relatively flat and low lying (see Figure 2 in Attachment 1) except that the quarrying activities immediately to the north of the landfill have resulted in the presence of a 15 to 20-foot vertical escarpment which runs parallel to the northern edge of the landfill cover area. The western edge of the landfill cover area slopes downward toward the wetland.

The Site is underlain by an unconfined sand and gravel aquifer ranging from about 15 to 75 feet thick. Metamorphic bedrock occurs beneath the sand and gravel overburden deposits. A peat layer is present at ground surface in and near the wetland. Groundwater flows through the overburden in a northwesterly direction. The bedrock is fractured, with flow in the shallow bedrock appearing to be slightly north of west. Groundwater from both the bedrock and overburden discharges to Peters Marsh Brook and the wetland to the west of the landfill cover area. The landfill accepted municipal and industrial wastes from the mid-1930's to 1981. Initially the wastes were burned, but in 1958, the burning was stopped and the wastes were land filled after excavating the natural soils. Soils were used to cover the wastes daily and the landfill expanded westward. The approximate extent of buried landfill wastes is shown on Figure 2 in Attachment I.

The City of Somersworth owns the entire landfill area and much of the wetland areas to the northwest of the former landfill. Numerous residential properties exist to the south, east, and west of the Site, including two apartment buildings located adjacent to the northeast corner of the Site. A National Guard Armory and fire station are also located to the east of the Site, and a cemetery is located to the northeast.

Approximately 10 acres of the eastern portion of the former landfill on the Site (the Pre-CERCLA Cover) were reclaimed by the City prior to the Site being listed on the NPL for use as recreational facilities (tennis and basketball courts, ball fields, and a playground) (aka Former Forest Glade Park). The Pre-CERCLA Cover area has always been considered part of the Site and it was understood that it offered the same level of protectiveness as the area under the CERCLA cover. The cover's composition and thickness within these 10 acres, was tested during July, 2011[1] to determine whether the Pre-CERCLA Cover was protective in preventing direct exposure to Site contaminants, as called for in the ROD. The Pre-CERCLA Cover was compared to the adjacent permeable landfill cover that was constructed in 2001 as part of the ROD remedy (the "ROD Cover"). Twenty five out of twenty seven soil borings within the Pre-CERCLA Cover area revealed that the existing cover on top of the waste met the ROD's protectiveness standard of being at least one foot thick. It was observed that the Pre-CERCLA Cover consisted primarily of sand and gravel which is consistent with the materials used in the ROD Cover area. Two of the twenty seven soil borings showed insufficient cover material (*i.e.* less than one foot). As part of the remedial measures addressed under this ESD, additional cover material will be placed in these areas to establish the cover thickness to at least one foot thick. See Figure 3 in Attachment 1.

The City has decommissioned the former playing fields located within the Pre-CERCLA Cover area (although they have maintained use of a paved basketball court area). Formerly, there also was interest in establishing playing fields on the ROD Cover area within the Site, but this has not been pursued since it would entail having to deposit additional cover materials to increase the cover thickness and prevent exposure to the underlying landfill debris. The City is evaluating future reuse options for the entire Site such as passive recreation and/or solar power co-generation. The limited

[1] *Results of Verification of the Thickness of the Landfill Cover and Soil Sampling in the Reclaimed Areas Formerly Used for Recreation, Somersworth Sanitary Landfill Superfund Site, Somersworth, New Hampshire.* Letter/report from Geosyntec to EPA dated August 15, 2011.

area of the Site that is not under either the pre-CERCLA or ROD covers is primarily wetlands, and a small portion of this area is being considered for reuse as a multi-use recreational trail.

Groundwater sampling conducted at the Site during the Remedial Investigation and Feasibility Study (RI/FS) between 1985 and 1992 indicated the presence of the following volatile organic compounds (VOCs):

- trichloroethene (also known as trichloroethylene; TCE);
- tetrachloroethene (also known as tetrachloroethylene or perchloroethylene; PCE);
- 1,1-dichloroethene (1,1-DCE);
- cis and trans isomers of 1,2-dichloroethene (cis-1,2-DCE and trans-1,2-DCE, respectively);
- 1,2-dichloroethane (1,2-DCA);
- vinyl chloride (VC);
- benzene; and
- methylene chloride, also known as dichloromethane (DCM).

Metals (including antimony, arsenic, beryllium, and chromium) were detected in groundwater samples collected using standard techniques during the RI/FS at concentrations that may result in unacceptable risk assuming future residential use of the groundwater. However, the concentrations of metals in up-gradient samples were not statistically different from down-gradient ones, indicating that metals are naturally occurring and therefore no groundwater cleanup levels were set for these in the 1994 ROD. Polychlorinated biphenyls (PCBs) and pesticides were not detected in the groundwater samples.

The Five Year Review performed in 2010 recommended that additional groundwater be collected in order to confirm that metals concentrations in groundwater at the Site are consistent with background levels. In November 2010 a selection of ten wells was sampled and analyzed for a list of fourteen total metals. The selected wells included upgradient (background), near source, downgradient wells, and both bedrock and overburden wells. In all ten wells, ten of the fourteen metals were not detected. The remaining four metals (zinc, arsenic, iron and magnesium), were found at concentrations consistent with background levels except arsenic. Elevated levels of arsenic were found in the landfill's groundwater and immediately downgradient from it, but it is naturally occurring and concentrations at the edges of the Groundwater Management Zone (GMZ) are consistent with background levels.[2]

The GMZ was established by the City in 2000 under Section 19.10B of the City Somersworth Ordinances. Within the GMZ all residences are on municipal water and the use of groundwater is prohibited. The boundary of the GMZ is defined in Section 19.10C of the Ordinance (see Attachment 3).

The 1994 ROD indicated that the groundwater VOC distribution had reached a steady-state condition and VOCs had extended approximately 1,700 feet down gradient of the landfill. Groundwater sampling conducted during Remedial Design indicated that by 1998, the extent and overall concentration of VOCs in groundwater was significantly less than prior estimates (about 1,200 feet

[2] Geosyntec Consultants. Annual Monitoring and Demonstration of Compliance Report for 2010. April 4, 2011.

down-gradient of the landfill) and that significant natural attenuation of the VOCs in groundwater was occurring.[3] Recent sampling provides additional evidence that natural attenuation is ongoing.

Subsurface soils from test pits and borings sampled during the RI/FS had low concentrations of VOCs and semi-volatile organic compounds. Surface soil within the landfill area was not sampled. VOCs were detected in sediment and surface water samples from the wetlands in 1985 and 1986; no VOCs were detected during subsequent sampling of the surface water in 1992. In 2006, samples of sediment pore water and surface water in the wetland down-gradient of the chemical treatment wall (CTW), which is a component of the groundwater remedy, were collected. No significant concentrations of VOCs were measured in pore water or surface water samples.

During the testing of the Pre-CERCLA Cover materials at the former recreational area, surficial soils (0-6 inches) were tested for metals. Arsenic was the only metal found to exceed the state standard of 11 mg/Kg in three out of nine samples. However, the concentrations observed in July 2011 (12.6, 14.1, and 16.3 mg/Kg) were less than the median and mean concentrations of historically available background levels of arsenic in local soils adjacent to the Site (21 and 26 mg/Kg, respectively). These background levels were established using past sampling results at locations up-gradient and cross-gradient from the landfill and the assessment of a professional geologist.[4]

B. Summary of the Selected Remedy

The remedial action objectives, as stated in the 1994 ROD, are to:

- *Prevent ingestion of contaminated groundwater by local residents*
- *Prevent the public from coming into direct contact with contaminated solid wastes, surface soils, surface water, and sediments*
- *Reduce or eliminate migration of contaminants from the solid wastes or soils into groundwater or surface water*
- *Reduce or eliminate off-site migration of contaminants in excess of regulated allowable limits*
- *Ensure that the groundwater and surface water have residual contaminant levels that are protective of human health and the environment.*

To meet these objectives, the selected remedy, as described in the 1994 ROD includes both source control and management of migration components.

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[3] Beak International Incorporated (Beak). 1998. Design Investigation Report for the Pilot Study and Site Groundwater Monitoring Program. Remedial Design for Preferred Remedial Action at the Somersworth Sanitary Landfill Superfund Site, New Hampshire. Draft Report. July 1998.

[4] *Response to EPA's Request for a Background Study Within the Former Recreational Areas, Somersworth Sanitary Landfill Superfund Site, Somersworth, New Hampshire.* Letter/report from Geosyntec to EPA, dated May 7, 2012.

The source control remedial components include:

- *installation of a treatment wall composed of impermeable barrier sections and innovative, permeable, chemical treatment sections to provide in-situ (in-place), flow-through treatment of contaminated groundwater at the landfill waste boundary (the compliance boundary). The barrier sections, sheet piling or slurry walls, will direct contaminated groundwater through the treatment sections where detoxification of the VOCs will occur; and*

- *placement of a permeable cover over the landfill allowing precipitation to flush contamination from the waste area. This cover will remain as long as contaminants continue to leach from the landfill waste and the chemical treatment "wall" is functioning. After cleanup levels have been achieved and can be maintained without use of the treatment "wall," EPA will evaluate an appropriate landfill cover to be installed to close the landfill.*

The management of migration remedial components includes:

- *installation of a pump in bedrock monitoring well B-I2R to extract contaminated groundwater. The contaminated groundwater will be either discharged onto the landfill to enhance flushing or injected just up-gradient of the chemical treatment wall to receive treatment for the preferred alternative or treated with the extracted overburden groundwater for the contingency alternative. The need for bedrock groundwater extraction wells down gradient of the chemical treatment wall or perimeter slurry wall will be investigated during the design. This investigation will focus on the number, location, and flow rate of the wells; the timing of their installation; and the impacts on the overall groundwater cleanup.*

- *natural attenuation of contaminated groundwater beyond the compliance boundary to lower contaminant concentrations through physical, chemical and biological processes until groundwater cleanup levels are met.*

Additional remedial components include:

- *institutional controls to ensure that the affected groundwater will not be used until groundwater cleanup levels have been met; a fence will be installed around the landfill to restrict access with the area requiring fencing to be determined during design; and*

- *a detailed groundwater monitoring program to be developed during remedial design. The program will address long-term monitoring of the aquifer and performance monitoring of the chemical treatment wall.*

III. DESCRIPTION OF SIGNIFICANT DIFFERENCES

1. Measures that were taken to control landfill gas emissions (*i.e.* construction of a passive venting system and the implementation of a landfill gas monitoring program).

The 1994 ROD did not specify requirements to monitor or manage landfill gas based on the results of the RI/FS. A landfill gas monitoring program was initiated at the Somersworth Landfill after

discussions with EPA and the NHDES, and following the receipt of a letter on February 6, 2001 from the EPA Office of Site Remediation and Restoration.[5] In this letter, EPA requested the inclusion of a landfill gas-monitoring program in the Site's Environmental Monitoring Plan (EMP). The program was to be designed and implemented to detect the possible off-site migration of landfill gas at levels that could cause the remedy currently being implemented at the Site to be non-protective. In addition, this ESD adds State action-specific ARARs for landfill gas controls requiring that the "[landfill] *shall not cause the concentration of methane and other explosive gases to: (1) Exceed 25 percent of the lower explosive limit for gases in structures on or off-site, excluding leachate collection and gas control and recovery components; and (2) Exceed 50 percent of the lower explosive limit for the gases at and beyond the property boundary within the soil.*" Also, the State's rule calls for a monitoring program to be implemented so that the above requirements are met. Please see Attachment 2 for updated tables of the ARARs.

Subsequently the landfill gas monitoring program was added to the Site's EMP and a passive gas collection system was installed in December 2003. No alternative gas control system was considered because the permeable cover of the landfill precluded any active gas collection/treatment (*i.e.* an active system would not be effective with a permeable cap). Therefore a passive system for mitigation was the only available option at the time.

To date, both the landfill gas monitoring program and the passive gas collection system remain operational and are addressing the migration of potentially harmful landfill gases from the Site. This ESD adds the landfill gas monitoring program and the passive gas collection system as components of the CERCLA remedy.

2. Changing the use restriction established under the ROD which required that a fence be installed around the landfill to restrict access.

The ROD called for the entire Site to be fenced to prevent access and exposure to contaminated media and that the specific area requiring fencing be determined during the design of the remedial action. During the design, it was determined that fencing would not be installed around the entire site but only around the control box and the underground vault for the groundwater extraction system. This change was laid out in the Final Report for the Preferred Remedial Action 100% Design and Demonstration of Compliance Plan dated April 23, 1999 and subsequently approved by EPA via letter on April 29, 1999. Fencing was installed around these components in 2000 but was taken down in 2006 when construction work was done on the vault to upgrade the water-tight seal of the vault. The vault and electrical box are currently locked to prevent access to these components.

Given that the locks are preventing tampering with these components, the fact that erecting a fence would draw attention and perhaps entice trespassing and vandalism, and the fact that a recent screening level risk assessment and a sampling effort in the former recreational area have ruled out unacceptable risks to potential users, EPA decided to forego this requirement.

[5] United States Environmental Protection Agency New England (Region I) (EPA). February 6, 2001 letter to Norman G. Leclerc, Project Coordinator, City of Somersworth, from Roger F. Duwart of EPA. February 6, 2001.

3. **Changing the use restrictions established under the ROD to permit passive recreational use of the entire Site, subject to Institutional Controls, and maintenance and monitoring, that will protect the landfill cover and prevent exposure to the underlying landfill contamination.**

The Pre-CERCLA Cover area consists of approximately 10 acres of the eastern portion of the former landfill which had been reclaimed by the City for use as recreational facilities (tennis and basketball courts, ball fields, and a playground) prior to the Site being listed on the NPL. See Figure 3 in Attachment 1. The ROD never acknowledged this existing use and during the CERCLA five-year review process it was identified that the omission needed to be addressed to determine whether passive recreation could be permitted or if access to the Site needed to be restricted.

In support of its decision to allow passive recreation at the Site, EPA evaluated a screening-level risk assessment that was performed by the Settling Defendants' consultant in September 2006. EPA reviewed the assessment and concluded that the risk from exposure to VOCs and metals from dermal contact with the soils from passive recreation on-site and the risk for exposure to inhalation of VOCs from passive recreation within the Site were within EPA's acceptable risk range.[6] Also at the request of the City, EPA and NHDES evaluated how thick a cover would be required to permit the development of soccer fields on the ROD Cover area. EPA's evaluation determined that for any new high impact activity such as soccer, at least a two feet thick undisturbed cover needed to be maintained, in order to prevent potential human exposure to the underlying landfill debris and contamination. Therefore additional cover material would be required to serve as a buffer layer and to establish vegetation on any new, high impact playing field developed on the ROD Cover area.[7]

Finally, as part of the investigations conducted in support of this ESD, chemical sampling was conducted on the Pre-CERCLA Cover material to determine if landfill contamination potentially migrated up into the cover and could pose a contact risk. The sampling did not identify any soil contaminant levels within the Pre-CERCLA Cover material that exceeded local background levels and which posed a risk.[8] Based on this information EPA has determined that passive recreation within the Site (*i.e.* walking and casual use) as opposed to active recreation (*i.e.* playing on soccer fields), does not pose a risk of exposure as long as ICs, maintenance, and monitoring procedures are in place to maintain a protective cover over the landfill debris and contamination.

4. **Adding a requirement that the cover over the Pre-CERCLA Cover area meet the same protectiveness standards as areas of the Site covered as part of the ROD Cover.**

As a follow up action to the fourth recommendation of the Second Five Year Review, EPA requested that the nature and extent of cover material within the Pre-CERCLA Cover area be evaluated first by reviewing available literature and, if necessary, followed by actual sampling and analysis. The evaluation was conducted to confirm that the existing fill on top of the Pre-CERCLA Cover area reclaimed by the City met the same protectiveness standards required under the ROD for the ROD Cover area.

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[6] Technical Memorandum from GeoSyntec consultants to the City of Somersworth City Manager, September 14, 2006.

[7] Letter from U.S.EPA to the City of Somersworth City Manager, February 15, 2007.

[8] Geosyntec letter to U.S. EPA, August 15, 2011.

On November 5, 2010 the City of Somersworth reported their evaluation findings to EPA; the report noted that anecdotal information (Records from the City and the Somersworth Housing Authority) indicated that approximately 2.5 feet of gravel and 8 inches of loam were used to cover the former recreational area. After reviewing the City's report, since there was no official record showing the nature and depth of the materials covering the former recreational area, EPA requested that the nature and depth of the cover materials be verified via soil borings to determine cover depth down to the landfill debris layer. In addition, an analysis of VOCs and metals within the cover material in the top six inches was conducted to assess whether the cover material had become contaminated by the underlying landfill material over time. A work plan for this task[9] was reviewed and approved on June 30, 2011and sampling took place on July 7 and 8, 2011.

The results were reported to EPA on August 15, 2011 and showed that the material was mostly sand ranging from 1 to 2 feet deep covered by a layer of top soil. Most (25 out of 27) soil borings showed a total depth of one foot or more of cover material on top of the landfill waste. Only two soil borings showed cover material being less than one foot deep. These two locations are situated on the north end of the Pre-CERCLA Cover area, north of the areas that encompass the baseball field and tennis courts.

The chemical analysis of the top six inches of the cover material showed no VOCs being detected and the only exceedance observed was for arsenic, based on NH Soil Remediation Criterion (11 mg/Kg), in three of the nine samples that were analyzed.[10] The Settling Defendants hypothesized that the high levels of arsenic observed at the cover material were consistent with the naturally occurring levels of arsenic typically found in New Hampshire.

EPA and NHDES reviewed the results in March 27, 2012. EPA, in consultation with NHDES, requested that in order for the Pre-CERCLA Cover area to meet the same protectiveness standards under the ROD as the ROD Cover area, the Settling Defendants needed to add additional clean soil (up to 1 foot of total depth) to the areas identified by the soil borings as having less than a foot of cover material. EPA also requested that the Settling Defendants establish three lines of evidence to demonstrate that the high levels of arsenic that were observed in the samples, comport with the naturally occurring arsenic levels in the immediate vicinity of the Site.

The lines of evidence requested were:

1. that a site specific arsenic background level for soil be determined for the site, via either a site-specific background study or a risk assessment.

2. that the average of the observed arsenic concentrations be shown to be below the NH Soil Remediation Criterion (11 mg/Kg).

3. that a professional geologist attests that the high levels of arsenic observed comport with naturally occurring concentrations of arsenic in the immediate vicinity of the Site.

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[9] *Revised Work Plan and Standard Operating Procedures (SOP) for the Evaluation of the Thickness of the Landfill cover in the Reclaimed sections of the Landfill used as Recreational Areas,* June 22, 2011.

[10] Per the Revised Workplan approved on June 30, 2011, a total of 27 surface soil samples were collected but only 9 were analyzed, keeping the reminder for possible future analysis.

On March 6, 2012, the Settling Defendants' consultant submitted to EPA a letter providing arsenic background data and other information demonstrating that the arsenic concentrations within the landfill cover material are consistent with naturally occurring background arsenic concentrations in soils in the vicinity of the Site. Data was provided on arsenic concentrations in soil near the Site that were obtained during the Remedial Investigation[11] and the RI Data Gathering Report[12] that demonstrate that the concentrations observed in samples of cover material collected in 2011 are consistent with site-specific background. Upon EPA recommendations, the Settling Defendants supported their findings with additional historical information and in August 23, 2012 submitted a revised report which was reviewed and approved by EPA on September 6, 2012 and concluded that the landfill cover concentrations of arsenic are attributable to naturally occurring levels of arsenic in soils in the immediate vicinity of the Site. Thus no further action was deemed necessary in regards to the soils containing elevated arsenic in the locations where such concentrations were observed.

This ESD establishes that the Pre-CERCLA Cover is a component of the CERCLA remedy and that it is required to meet all of the protectiveness standards required for the ROD Cover area, including but not limited to maintenance and monitoring. In addition, as added through this ESD, institutional controls will be required to protect the cover and prevent exposure to the underlying landfill debris and contaminants.

5. The establishment of land use restrictions in the form of an Activity and Use Restriction (AUR) and a Soil Management Plan (SMP), as additional Institutional Controls (ICs).

The 1994 ROD required that ICs be established to prevent use and exposure to contaminated groundwater but did not specify that ICs were required for the landfill area. The only mention of a control over the landfill concerned the fence discussed in # 2, above.

At the Second Five Year Review for the Site, performed in September 2010, one of the recommendations was to determine the need for additional ICs. Given the fact that access to the Site is not restricted and that there is the potential for people to walk on-site and tamper with some of the remedy's features (*i.e.* infiltration gallery manhole, the extraction well vault, the CTW monitoring wells), as well as the possibility of future redevelopment for both recreational and residential purposes, EPA feels it is necessary to add land use restrictions in the form of an Activity and Use Restriction (AUR) and a Soil Management Plan (SMP) to the current ICs already required under the ROD. The AUR will establish requirements, to prevent disturbance to the remedy and maintain the protections to human health, and the environment. The AUR will acknowledge and incorporate EPA's decision, set forth in this ESD, that: 1) passive recreation within the Site consistent with the level of activity that has historically occurred within the Pre-CERCLA Cover area as described herein, and 2) appropriate non-recreation reuse of the Site (e.g. solar powered co-generation) as approved by EPA and NHDES, may be permitted and will not pose a risk to human health or the environment as long as AUR requirements for the activity are met. This ESD serves as the formal CERCLA document to incorporate these additional ICs into the existing remedy.

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[11] Wehran Engineers and Scientists, 1989. Remedial Investigation, Somersworth Municipal Landfill, Somersworth, New Hampshire, May 1989.

[12] Canonie Environmental, 1992. RI Data Gathering Report, Somersworth Landfill, Somersworth, New Hampshire, May 1992.

6. Updating the ARARs cited in the 1994 ROD both to include the revised State and Federal standards and to identify additional standards that were not specifically identified in the 1994 ROD (Attachment 2).

Since the 1994 ROD, the State of New Hampshire has revised and renumbered its environmental regulations pertaining to surface water and groundwater. The State of New Hampshire has also promulgated new surface water and groundwater quality standards. In addition, NH standards for regulating landfill gas emissions are added to the remedy (see discussion in #1, above). This ESD updates ARARs cited in the 1994 ROD both to include the revised State environmental regulations and the new State surface water and groundwater quality standards.

It also includes the addition of some federal statutes and/or regulations as ARARs in order to: 1) ensure that planning and decision-making incorporate fish and wildlife protection considerations in consultation with the resource agencies (U.S Fish and Wildlife and NH Wildlife Agency); 2) add wetlands and flood regulations to replace others that no longer exist; 3) add storm-water standards to be met in case nearby surface waters are impacted by operation and maintenance practices; and 4) clarify that groundwater cleanup standards identified in the ROD will also be used as monitoring standards to assess groundwater until Interim Compliance Levels (ICLs) are achieved.

7. Incorporating measures that were taken to evaluate the potential for vapor intrusion in the residential areas along Blackwater Road as part of the remedy.

As part of the Second Five Year Review, the Settling Defendants presented a vapor intrusion (VI) evaluation of historical Site data and information. The evaluation supports the conceptual model that the VOCs in the groundwater south of Blackwater Road are deep in the bedrock, and that there is a lens of clean overburden groundwater above it. Therefore there is no complete pathway for potential vapor intrusion into residences. This study area was selected as having the strongest potential for potential VI exposures since it includes homes that are in close proximity to the only extraction well on-site, well BRW-1, a bedrock well. The highest concentrations of VOCs (up to 9,144 µg/L) have been observed at this well. However, at well B-12L, an overburden well which is nested with bedrock well B-12R, the concentrations of VOCs have been very low, and in many instances (1989, 1990, and 1992) the concentrations have been non-detect. During these years, late 1980s and early 1990s, the concentration of total VOCs at the bedrock groundwater was at its highest (9,144 µg/L) and it has diminished significantly ever since (as low as 601 µg/L in 2009). Since the concentration of VOCs in the overburden groundwater was negligible at the time where the concentration of VOCs was much higher in the bedrock groundwater, thus it is highly unlikely that in the present time, after such a significant decrease in the bedrock VOC concentration, VOCs would be present in the overburden.

As part of the Five Year Review recommendations, EPA requested that additional overburden groundwater data be provided in order to confirm this conceptual model. On November 2010, additional groundwater sampling was conducted by the Settling Defendants in the vicinity of well B-12R. Samples were collected from nearby overburden wells (B-12L and B-13WT). The samples were analyzed for the chlorinated ethenes (CEs) at the Site: Benzene; dichloromethane (DCM); 1,1-dichloroethene (1,1-DCE); cis-dichloroethene (cDCE); trans-dichlorethene (tDCE); tetrachloroethene (PCE); trichloroethene (TCE); and vinyl chloride (VC). As expected, both wells showed non-detect concentrations for all the VOCs analyzed.

In addition, this clean water lens in the overburden is continuous over the entire area. This has been confirmed by the VOC concentrations observed in well B-13WT and soil gas probe (SGP) 1, 2, and 3, all of which are screened across the water table. Thus, the conceptual site model is supported by the data collected which shows that the VI exposure pathway is incomplete due to a clean lens of water in the overburden acting as a barrier between the homes and the bedrock groundwater.

The VI investigations are incorporated into the CERCLA remedy and support a finding that VI does not pose a risk at the Site.

IV. SUPPORT AGENCY COMMENTS

The State of New Hampshire has participated with EPA in reviewing the modifications to the remedy which are described herein and concurs with the approach adopted by EPA. (Document # 70006552 in the Administrative Record).

V. STATUTORY DETERMINATION

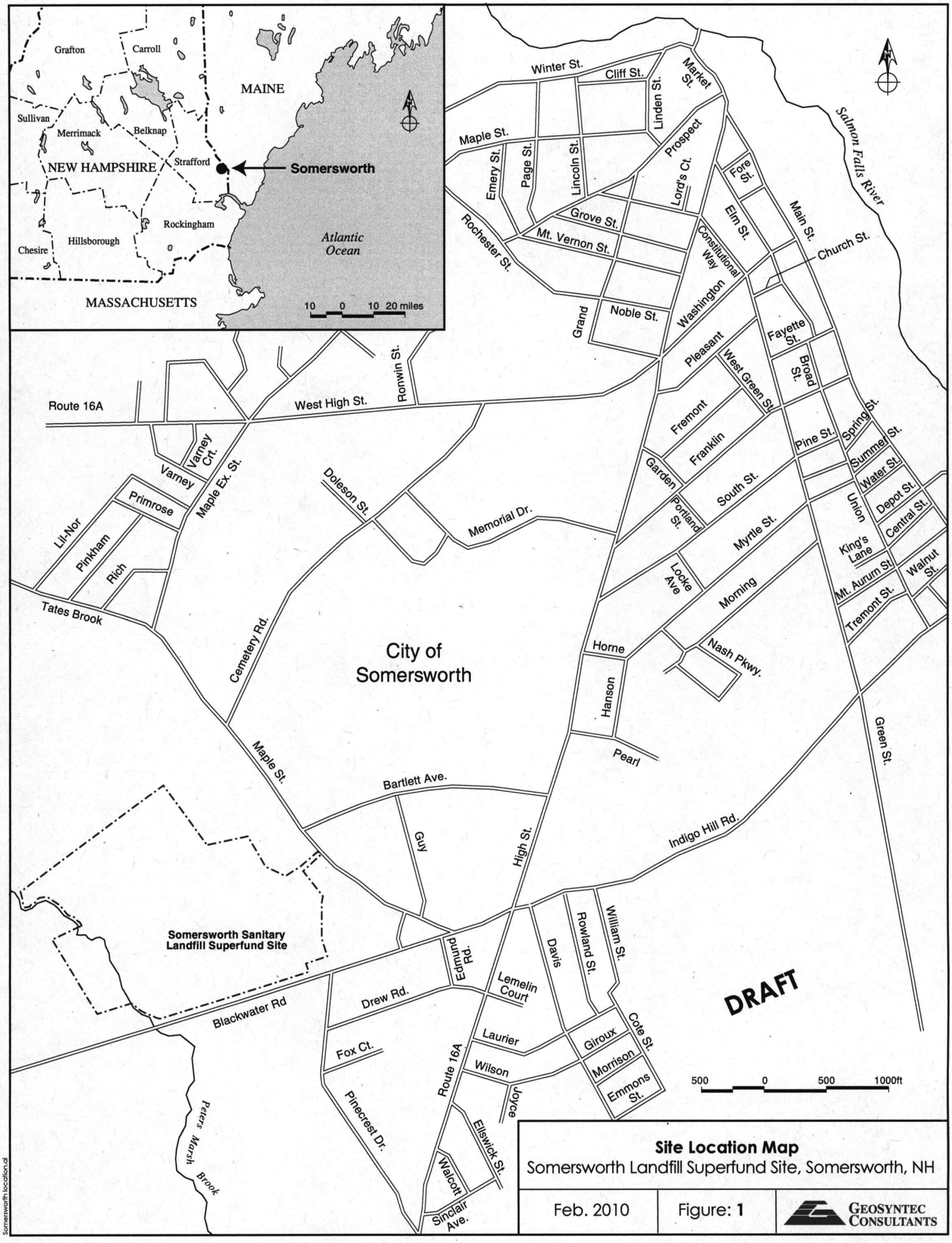
Considering the above outlined adjustment to the selected remedy set forth in the 1994 ROD, EPA believes that the remedy remains protective of human health and the environment, complies with all Federal and State requirements that are applicable or relevant and appropriate to this remedial action, and is cost-effective.

VI. PUBLIC INFORMATION

This ESD and the Administrative Record are available for public review at the locations and times listed in Section 1 above as well as on the internet at www.epa.gov/region l/superfund. Adobe Reader is required to review the documents. Notice of the release of the ESD will be published in the Fosters Daily Democrat Newspaper. Also a press release will be issued.

ATTACHMENT 1

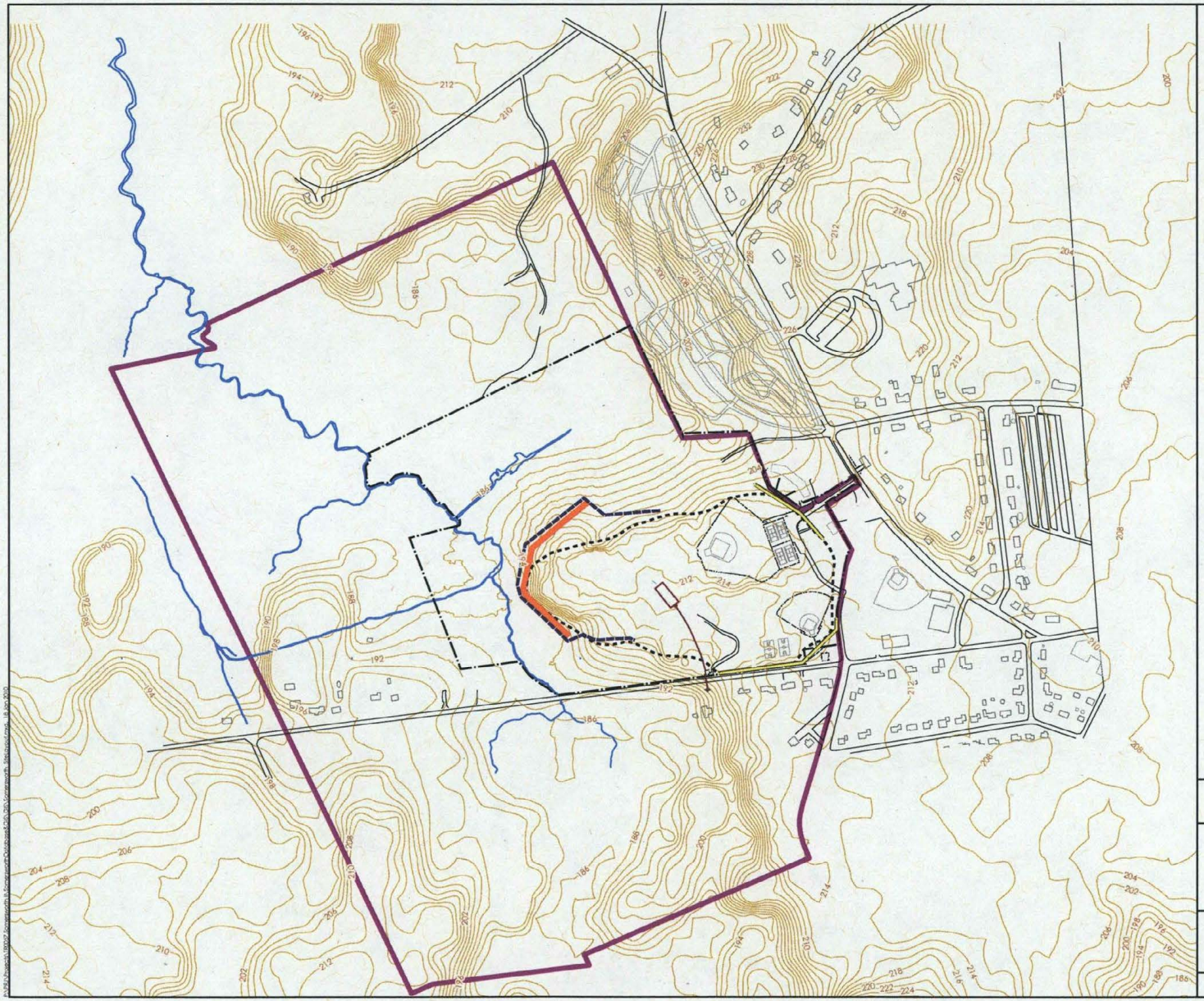
Figures of Somersworth Sanitary Landfill Superfund Site



Site Location Map
Somersworth Landfill Superfund Site, Somersworth, NH

Feb. 2010	Figure: **1**	GeoSyntec Consultants

Somersworth location.ai



N

Legend

- Boundary of Groundwater Management Zone
- Chemical Treatment Wall (CTW)
- Soil Gas Collection Trench
- City of Somersworth Property Boundary / Activity and Use Restriction Boundary
- Approximate Extent of Waste Area / Landfill Gas Point of Compliance
- Groundwater Point of Compliance
- Topographic Contour (feet above mean seal level)

500 250 0 500 Feet

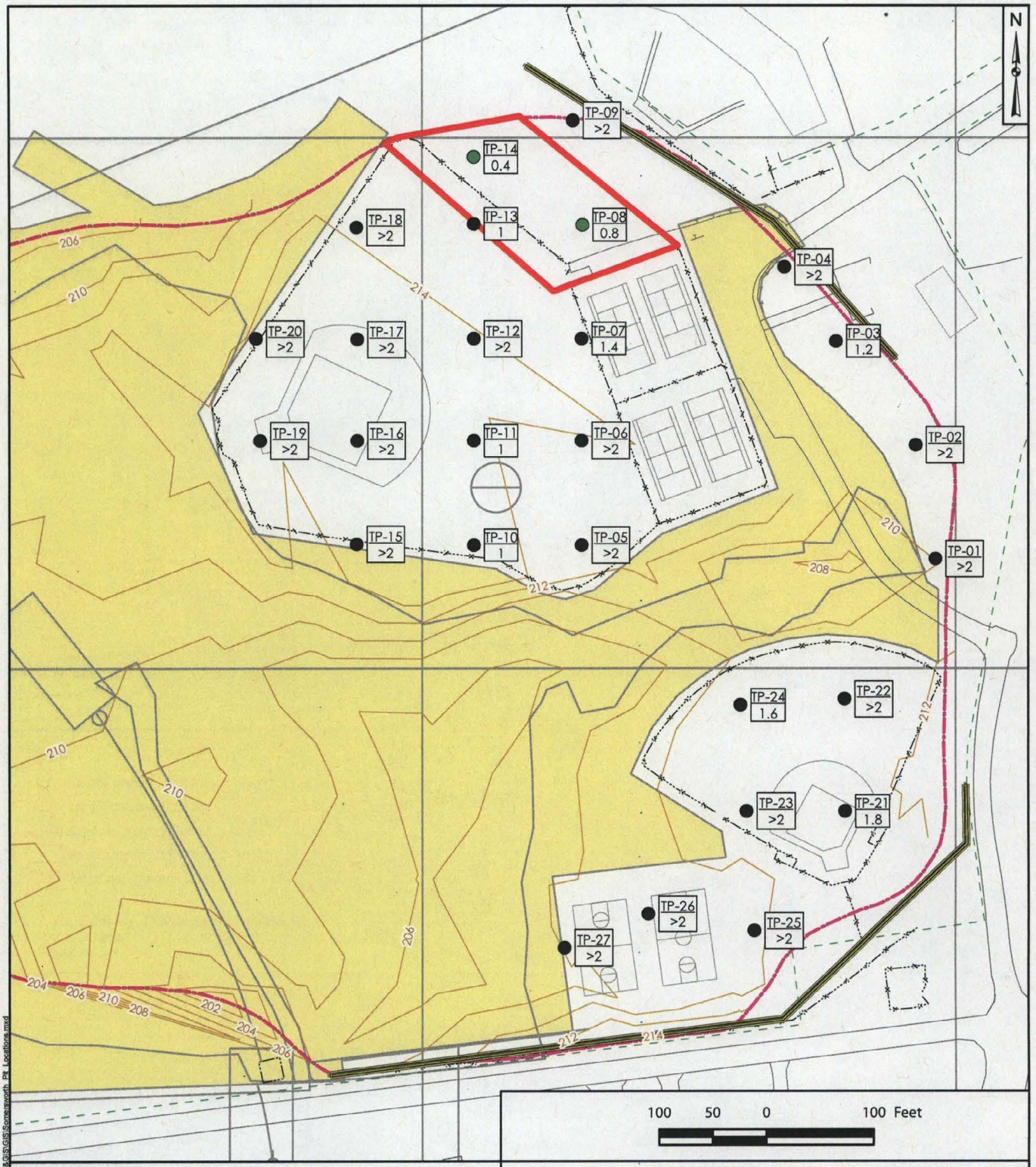
Site Layout

Somersworth Landfill Superfund Site, Somersworth, NH

Geosyntec consultants

Guelph | March 2013

Figure 2



Legend

- Landfill cover <1 feet deep
- Landfill cover ≥1 feet deep
- Soil Gas Collection Trench
- Permeable Cover Installed in 2001 [1]
- Proposed Area for Addition of Fill
- Fence Line
- Property Line
- Waste
- Surface Water
- TP-20 / 0.4 — Test Pit ID / Depth of Cover (feet)

[1] *As built drawings from the Final Interim Remedial Action Report for Preferred Remedial Action at the Somersworth Sanitary Landfill Superfund Site.*

Path: P:\PR\Projects\TR0057 Somersworth II\SomersworthDatabase&GIS\GIS\Somersworth Pit Locations.mxd

Landfill Cover Thickness and Proposed Area for Addition of Fill

Somersworth Landfill Superfund Site, Somersworth, NH

Geosyntec consultants

Guelph | March 2013

Figure 3

ATTACHMENT 2

Table of Revised Applicable or Relevant and Appropriate Standards (ARARs)

Table 1. Somersworth Sanitary Landfill
Location-Specific ARARs

Medium	Requirements	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
Federal Requirements					
Wetlands/ Fish and Wildlife Habitat	Fish and Wildlife Coordination Act (16 U.S.C. §661 *et seq.*)	Applicable	Any modification of a body of water or wetland requires consultation with the U.S. Fish and Wildlife Service and the appropriate state wildlife agency to develop measures to prevent, mitigate, or compensate for losses of fish and wildlife.	Wetlands are in close proximity to the landfill and may be altered by the remedial action. Operation and maintenance of the remedy may have some limited impacts to fish and wildlife resource areas. Planning and decision-making will incorporate fish and wildlife protection considerations in consultation with the resource agencies.	Not cited in the ROD.
Wetlands and Floodplain	Floodplain Management and Protection of Wetlands (44 C.F.R. § 9)	Relevant and Appropriate	Federal Emergency Management Agency (FEMA) regulations that set forth the policy, procedure and responsibilities to implement and enforce Executive Order 11988, Floodplain Management, and Executive Order 11990, Protection of Wetlands. Under these regulations no activity that adversely affects a federal jurisdictional wetland shall be permitted if a practicable alternative with lesser effects is available. Action to avoid, whenever	Wetlands are in close proximity to the landfill and may be altered by the remedial action. Operation and maintenance of the remedy, along with monitoring activities may have some limited impacts to Federal jurisdictional wetlands. Wetlands disturbed by well installation, landfill cover operation and maintenance, monitoring, or other remedial activities (including the eventual capping of the landfill) will be mitigated in accordance with requirements.	Former wetland and floodplain regulations that incorporated Executive Orders 11988 and 11990 at 40 C.F.R. Part 6, Appendix no longer exist so have been replaced by requirements to meet the Executive Order standards at 44 C.F.R. § 9.

Table 1. Somersworth Sanitary Landfill
Location-Specific ARARs

Medium	Requirements	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
			possible, the long- and short-term impacts on wetlands and to preserve and enhance wetlands.		
Wetlands	Clean Water Act, Section 404 (33 U.S.C. § 1344); Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material (40 C.F.R. Part 230, 231 and 33 C.F.R. Parts 320-323)	Applicable	Under this requirement, no activity that adversely affects a federal jurisdictional wetland shall be permitted if a practicable alternative with lesser effects is available. Controls discharges of dredged or fill material to protect aquatic ecosystems.	Wetlands are in close proximity to the landfill and may be altered by the remedial action. Operation and maintenance of the remedy, along with monitoring activities may have some limited impacts to Federal jurisdictional wetlands. Wetlands disturbed by well installation, landfill cover operation and maintenance, monitoring, or other remedial activities (including the eventual capping of the landfill) will be mitigated in accordance with requirements.	As cited in the ROD
State Requirements					
Wetlands	Criteria and Conditions for Fill and Dredge In Wetlands:	Applicable	These standards regulate filling and other activities in or adjacent to wetlands, and establish criteria for the protection of wetlands	Wetlands are in close proximity to the landfill and may be altered by the remedial action. Operation and maintenance of the	ROD citation (Env-Wm 300-400 and 600) changed to Env-Wt 100-900 by the State.

Table 1. Somersworth Sanitary Landfill
Location-Specific ARARs

Medium	Requirements	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
	RSA Ch. 482-A and NH Admin. Code Env-Wt Parts 100-900		from adverse impacts on fish, wildlife, commerce, and public recreation.	remedy, along with monitoring activities may have some limited impacts to Federal jurisdictional wetlands. Wetlands disturbed by well installation, landfill cover operation and maintenance, monitoring, or other remedial activities (including the eventual capping of the landfill) will be mitigated in accordance with requirements.	
Wetlands/ Floodplain	Siting requirements for hazardous waste facilities and variances, Env-Hw 304.08 (Existing facilities) and 304.09 (New facilities).	Applicable for remedial actions where hazardous waste will be moved and Relevant and Appropriate for remedial actions where hazardous waste left in place.	Restrictions on siting hazardous waste facilities.	Any hazardous waste facility must comply with the siting requirements or with criteria for a variance	Listed as an Action-specific ARAR in the ROD. ROD citation (Env-Ws 353.09 and 353.10) changed to Env-Ws 304.08 and 304.09 by the State.
Endangered Species	Native Plant Protection Act, R.S.A. 217-A	Applicable	Prohibits damaging plant species listed as endangered in the State.	Any remedial action that may damage state-listed endangered plants will need to meet these standards.	As cited in the ROD.
Uplands/ Wetlands	Terrain alteration Env-Wq 1500 and RSA 485-A:17	Applicable	The purpose of these rules is to protect drinking water, surface water and groundwater from	Activities performed in association with the implementation of the remedy, including operation	ROD citation (Env-Ws 415) changed to Env-Wq 1500 by the State.

Table 1. Somersworth Sanitary Landfill
Location-Specific ARARs

Medium	Requirements	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
			degradation resulting from any activity which significantly alters terrain or occurs in or on the border of the surface waters of the state. Env-Wq 1505.04 specifically addresses Stormwater Management and Erosion and Sediment Control.	and maintenance of the covers and future construction and maintenance of the landfill cap, along with monitoring, will be compliant with these standards and will result in the least adverse impact to surface waters/wetlands. Engineering controls (e.g. siltation controls, erosion controls) will be implemented during remedial activities to minimize harm to surface waters/wetlands. Excavated material, including well drillings, will be stockpiled and dewatered outside of wetland areas prior to off-Site disposal. Wetlands would be restored (using suitable soil and vegetation) where altered temporarily by the remedy.	

Table 2. Somersworth Sanitary Landfill
Action-Specific ARARs

Medium	Requirement	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
Federal Requirement					
Hazardous Waste	Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §§ 6901, *et seq.*, 40 C.F.R. Part 264	Applicable for remedial actions where hazardous waste will be moved and Relevant and Appropriate for remedial actions where hazardous waste left in place.	New Hampshire has been delegated the authority to administer these RCRA standards through its state hazardous waste management regulations (Env-Hw 100-1100). These provisions have been adopted by the State.	Any wastes generated by remedial activity will be analyzed by appropriate test methods. If found to be hazardous wastes, then they will be managed in accordance with the substantive requirements of the State hazardous waste regulations. Wastes that may be generated include: investigation derived waste from monitoring activities and contaminated media produced during the operation and maintenance of the landfill cap and other components of the remedy.	As cited in the ROD
Surface Water	Clean Water Act (CWA), Section 402, 33 U.S.C. § 1342; 40 C.F.R.. 122,125, 131, 136, 450 - Discharge of Pollutants	Applicable	These standards address water discharges which may be directed to surface water. Also establishes stormwater standards for construction and development projects that are over one acre	If a discharge from the remedial action is directed to surface water the discharge will be treated, if necessary, so that these standards will be achieved. Monitoring may be performed, if required to determine whether operation and maintenance of the remedy could potentially affect nearby surface water bodies, in accordance with Env-Or-607 (see below). Any remedial action that will disturb one acre or more, including future cap construction, will meet these stormwater standards.	As cited in the ROD except the ROD did not include stormwater standards at 40 C.F.R. Part 450.

Table 2. Somersworth Sanitary Landfill
Action-Specific ARARs

Medium	Requirement	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
Surface Water	CWA, National Recommended Water Quality Criteria (NRWQC), 40 C.F.R. 122.44	Relevant and Appropriate	Federal NRWQC are health-based and ecologically based criteria developed for carcinogenic and non-carcinogenic compounds.	Used to establish monitoring standards for surface waters and sediments, if required for the remedial action. Surface water and sediment may be monitored to determine whether the remedial action is effective in protecting wetlands and waterways outside of the Site from the migration of Site contaminants.	Cited as a chemical specific ARAR in the ROD (called Federal Water Quality Criteria (FWQC)). For the remedy these standards are action-specific since they are to be used for monitoring standards, rather than as cleanup standards for water (surface water is not being remediated under the CERCLA remedy).

Table 2. Somersworth Sanitary Landfill
Action-Specific ARARs

Medium	Requirement	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
Groundwater	Safe Drinking Water Act (42 U.S.C. §300f *et seq.*); National primary drinking water regulations (40 C.F.R. 141, Subpart B and G)	Relevant and Appropriate	Establishes maximum contaminant levels (MCLs) for common organic and inorganic contaminants applicable to public drinking water supplies. Used as relevant and appropriate monitoring standards for aquifers and surface water bodies that are potential drinking water sources.	Used to establish monitoring standards for groundwater. Once groundwater cleanup standards have been achieved beyond the compliance boundary for the landfill and the landfill capped, MCLs will be used as long-term monitoring standards to ensure that groundwater contamination under the landfill does not migrate outside of the landfill's compliance boundary.	Not identified as action-specific groundwater monitoring standards in the ROD.
Groundwater	Safe Drinking Water Act (42 U.S.C. §300f *et seq.*); National primary drinking water regulations (40 C.F.R.. 141, Subpart F)	Relevant and Appropriate for non-zero MCLGs only; MCLGs set as zero are To Be Considered.	Establishes maximum contaminant level goals (MCLGs) for public water supplies. MCLGs are health goals for drinking water sources. These unenforceable health goals are available for a number of organic and inorganic compounds.	Used to establish monitoring standards for groundwater. Once groundwater cleanup standards have been achieved beyond the compliance boundary for the landfill and the landfill capped, MCLGs will be used as long-term monitoring standards to ensure that groundwater contamination under the landfill does not migrate outside of the landfill's compliance boundary. Non-zero MCLGs are relevant and appropriate. MCLGs set at zero are to be considered.	Not identified as action-specific groundwater monitoring standards in the ROD.

Table 2. Somersworth Sanitary Landfill
Action-Specific ARARs

Medium	Requirement	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
Groundwater	Health Advisories (EPA Office of Drinking Water)	To Be Considered	Health Advisories are estimates of risk due to consumption of contaminated drinking water; they consider non-carcinogenic effects only. To be considered for contaminants in groundwater that may be used for drinking water where the standard is more conservative than either federal or state statutory or regulatory standards. The Health Advisory standard for manganese is 0.3 mg/l.	Used to establish monitoring standards for groundwater. Once groundwater cleanup standards have been achieved beyond the compliance boundary for the landfill and the landfill capped, the performance standards derived from these advisories will be used as long-term monitoring standards to ensure that groundwater contamination under the landfill does not migrate outside of the landfill's compliance boundary.	The ROD does not cite TBCs.
Groundwater	Summary of Key Existing EPA CERCLA Policies for Groundwater Restoration June 26, 2009 OSWER Directive 9283.1-33	To Be Considered	Guidance on developing groundwater remedies at CERCLA sites.	Groundwater within the Site is considered a potential drinking water source except within the compliance boundary of the landfill. Therefore, groundwater must achieve federal drinking water and risk-based standards or more stringent State groundwater standards outside of the landfill compliance boundary. Groundwater use restrictions outside of the compliance boundary will be maintained until groundwater cleanup standards are achieved. Inside of the compliance boundary groundwater use restrictions will be in effect for as long as the landfill remains in place. Groundwater monitoring using these	The ROD does not cite TBCs.

Table 2. Somersworth Sanitary Landfill
Action-Specific ARARs

Medium	Requirement	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
				standards will be used to make sure groundwater exceeding these standards does not migrate beyond the compliance boundary. Exceedance of these standards within the compliance boundary is a basis for establishing prohibitions on the use of groundwater within the compliance boundary. An additional buffer zone beyond the compliance boundary to prevent groundwater wells from being installed that would draw contaminated groundwater beyond the compliance boundary may also be established, if required.	
State Requirements					
Groundwater/ Soil	Contaminated Site Management, NH Admin. Code Env-Or 600: Part 607, Groundwater Management Permits; Part 608, Activity and Use Restrictions; Part 610, Monitoring; Part 611, Contaminated Soils	Applicable	Env-Or Part 607 provides for establishment of Groundwater Management Zones (GMZ) to control use of groundwater that exceeds AGQS, requires monitoring of the groundwater quality within the GMZ, requires implementation of measures to restore the groundwater quality, and requires an evaluation of the effectiveness of the	A GMZ, enforced by a municipal ordinance, will be established to protect against use of contaminated groundwater. Groundwater use restrictions will be established to prevent human exposure to contaminated groundwater. Groundwater monitoring will be required until State ground water standards are achieved throughout the GMZ Groundwater monitoring wells will be installed, operated, and decommissioned under these standards. Contaminated soils generated from installation of wells,	GMZ rules (Env-Ws 410.26) listed as location-specific ARARs in the ROD, changed to Env-Or 607.05 by the State. Groundwater Criteria for Remedial Action rules (Env-Ws 410.24(a) and (b)) and

Table 2. Somersworth Sanitary Landfill
Action-Specific ARARs

Medium	Requirement	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
			measures. Part 608 establishes standards for setting institutional controls to protect human health and components of the remedy. Part 610 establishes standards for monitoring groundwater, including requirements and criteria for constructing, developing, and decommissioning monitoring wells. Part 611 establishes standards for managing contaminated soils.	operation and maintenance of the landfill cover and future cap, and any other remedial activity will be managed in compliance with these standards. Activity and use restrictions, along with a soil management plan, will be established to prevent disturbance to the components of the remedy (including monitoring wells, landfill covers/cap, gas venting system) and exposure to landfill/soil contaminants. There will be at least yearly compliance monitoring to ensure groundwater use and soil activity and use restrictions remain in place and are enforced.	Groundwater Management Permit Compliance Criteria (Env-Ws 410.27) rules listed as action-specific ARARs in the ROD, incorporated into Env-Or Part 607 by the State. The ROD does not cite the other regulatory requirements of Env-Or 600, including standards for activity and use restrictions and remediating contaminated soils.

Table 2. Somersworth Sanitary Landfill
Action-Specific ARARs

Medium	Requirement	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
Hazardous Waste	Hazardous Waste Management Act and Hazardous Waste Regulatons, RSA Ch. 147-A, Env- Hw 100-1100	Applicable for remedial actions where hazardous waste will be moved and Relevant and Appropriate for remedial actions where hazardous waste left in place.	Establishes standards for the treatment, storage, transport and disposal of hazardous waste ant the closure of hazardous waste facilities. New Hampshire has been delegated the authority to administer the federal RCRA standards through these state hazardous waste management regulations	Management of hazardous wastes as part of the remedial action must comply with the substantive requirements of these regulations. Some of the specific sections of the regulations that pertain to the remedial action are cited below.	The ROD includes a general citation to the regulations as Env-Wm 100-1000 that was changed to Env-Hw 100-1100 by the State.

Table 2. Somersworth Sanitary Landfill
Action-Specific ARARs

Medium	Requirement	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
Hazardous Waste	Identification and Listing of Hazardous Wastes, N.H.. Admin. Code Env-Hw 400,	Applicable	These standards list particular hazardous wastes and identify the maximum concentration of contaminants for which the waste would be a RCRA characteristic waste. The analytical test set out in Appendix II of 40 C.F.R. Part 261 is referred to as the Toxicity Characteristic Leaching Procedure (TCLP). The federal requirements 40 C.F.R. Part 261 are incorporated by reference.	Any wastes generated by remedial activity will be analyzed to determine whether they are listed or characteristic hazardous waste under these standards. Materials that are listed waste or exceed TCLP hazardous waste thresholds will be disposed off-site in a RCRA Subtitle C facility. Non-hazardous materials will be disposed appropriately.	The specific identification and listing of hazardous waste regulations were not identified in the ROD
Hazardous Waste	Requirements for Hazardous Waste Generators, N.H. Admin. Code Env-Hw 500 including Part 507 Storage Requirements; Part 513 Emergency/Remedial Actions	Applicable	Requires a determination as to whether waste materials are hazardous and, if so, requirements for managing such materials on site prior to shipment off site. The federal requirements 40 C.F.R. Part 262 are incorporated by reference.	If remedial activity generates hazardous wastes, then they will be managed in accordance with the substantive requirements of these regulations.	The specific hazardous waste generator rules were not identified in the ROD

Table 2. Somersworth Sanitary Landfill
Action-Specific ARARs

Medium	Requirement	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
Hazardous Waste	Requirements for Owners and Operators of Hazardous Waste Facilities/Hazardous Waste Transfer Facilities, N.H. Admin. Code Env-Hw 700: including § 702.10 Groundwater Monitoring; § 702.11, Other Monitoring; Part 706, Emergency/Remedial Actions; Part 708, Facility Standards	Applicable	This regulation establishes requirements for owners or operators of hazardous waste sites. Part 708 incorporates by reference the federal requirements under 40 C.F.R. Part 264, including but not limited to Subpart G (closure/post closure).	An interim cover has been established over the landfill to permit the implementation of the groundwater remedy. Once groundwater standards are achieved the landfill will be closed based on these standards.	The ROD only specifically identified Environment and Health Requirements (Env-Wm 702.08) changed to Env-Hw 702.08; General Design Specifications (Env-Hw 702.09) changed to Env-Hw 702.09; Groundwater Monitoring (Env-Wm 702.11) changed to Env-Hw 702.10; Other Monitoring (Env-Wm 702.12) changed to Env-Hw 702.11; Operation Requirements (Env-Wm 708.02) changed to Env-Hw 708-02; and Technical Requirements (Env.Wm 708.03) changed

Table 2. Somersworth Sanitary Landfill
Action-Specific ARARs

Medium	Requirement	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
					to Env-Hw 708.03 by the State.
Landfill Gas	Decomposition Gas Control Requirements, N.H. Admin. Code Env-SW 806.07	Relevant and Appropriate	Operation and monitoring requirements for methane and other explosive gases generated from landfills.	The passive landfill gas venting system and the implementation of a landfill gas monitoring program have been designed and will be maintained to reduce the soil gas levels of methane beyond the point of compliance at the landfill to levels below the regulatory limit of 50% of the lower explosive limit (2.5% methane).	Landfill gas standards not included in the ROD.
Groundwater	Drinking Water Quality Standards: NH Admin. Code Env-Dw 700	Relevant and Appropriate for MCLs and non-zero MCLGs only; MCLGs set as zero are To Be Considered.	State MCLs and MCLGs establish maximum contaminant levels permitted in public water supplies and are the basis of State Ambient Groundwater Quality Standards (AGQS) that are applicable to site ground water. The regulations are generally equivalent to the Federal	Once groundwater cleanup standards have been achieved beyond the compliance boundary for the landfill and the landfill capped, Any state standards that are more stringent than federal standards will be used as long-term monitoring standards to ensure that groundwater contamination under the landfill does not migrate outside of the landfill's compliance boundary.	Not identified as action-specific groundwater monitoring standards in the ROD.

Table 2. Somersworth Sanitary Landfill
Action-Specific ARARs

Medium	Requirement	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
			Safe Drinking Water Act (SDWA).		
Groundwater	New Hampshire Ambient Groundwater Quality Standards (NH AGQS) (Env-Or 603.03, Table 600-1).	Relevant and Appropriate	Establishes maximum concentration levels for regulated contaminants in groundwater which result from human operations or activities. NH AGQS are equivalent to MCLs for contaminants that have MCLs. NH AGQS have been established for site groundwater contaminants for which no MCLs are established, and are derived to be protective for drinking water uses. The NH AGQS will be used for site contaminants where MCLs are not currently established.	Once groundwater cleanup standards have been achieved beyond the compliance boundary for the landfill and the landfill capped, Any state standards that are more stringent than federal standards will be used as long-term monitoring standards to ensure that groundwater contamination under the landfill does not migrate outside of the landfill's compliance boundary	Not identified as action-specific groundwater monitoring standards in the ROD.
Groundwater	Groundwater Quality Criteria: NH Admin. Code Env-Or 603.01(a),(b),and (c)	Applicable	Wm-Or 603.01(a), (b) and (c) provide that groundwater shall be suitable for use as drinking water without treatment; shall not contain any regulated contaminant in concentrations greater than ambient groundwater quality standards established in	Once groundwater cleanup standards have been achieved beyond the compliance boundary for the landfill and the landfill capped, Any state standards that are more stringent than federal standards will be used as long-term monitoring standards to ensure that groundwater contamination under the landfill does not migrate outside of the landfill's compliance boundary	Cited in the ROD as Criteria for Remedial Action (Env-Ws 410.24(a) and (b) changed to Groundwater Quality Criteria, Env-Or 603.01(a), (b), and (c) and (b) by the State.

Table 2. Somersworth Sanitary Landfill
Action-Specific ARARs

Medium	Requirement	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
			Env-Or 603.03; and shall not contain any regulated contaminant at a concentration such that the natural discharge of that groundwater to surface water will cause a violation of a surface water quality standard established in Env-Wq 1700.		
Groundwater	Nondegradation of Groundwater to Protect Surface Water: NH Admin. Code Env-Or 603.01 (c)	Applicable	Wm-Or 603.01(c) provides that, unless naturally occurring, groundwater shall not contain any contaminants at concentrations such that groundwater to surface water results in a violation of surface water standards in any surface water body within or adjacent to the site. Env-Or 603.01 (c) therefore incorporates surface water standards set forth at Env-Ws 1700.	Once groundwater cleanup standards have been achieved beyond the compliance boundary for the landfill and the landfill capped, Any state standards that are more stringent than federal standards will be used as long-term monitoring standards to ensure that groundwater contamination under the landfill does not migrate outside of the landfill's compliance boundary	Not identified as action-specific groundwater monitoring standards in the ROD.

Table 2. Somersworth Sanitary Landfill
Action-Specific ARARs

Medium	Requirement	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
Groundwater	Groundwater Discharge Permit and Registration: NH Admin. Code Env-Wq 402	Applicable	These regulations establish substantive requirements for discharges to groundwater, including prohibited discharges (Env-q 402.07), water quality sampling (Env-Wq 402.8). and compliance criteria (Env-Wq 402.22),	If the operation and maintenance of the landfill cover or future cap, groundwater remediation, or the monitoring system requires discharge to groundwater, these standards will be met.	ROD only cited three subsections of the rules: (Env-Ws 410.07, 410.09, 410.10) that were changed to into Env-Wq 402.07, Env-Wq 402.21 and Env-Wq 402-22 by the State.
Wastewater/ leachate	Standards for Pretreatment of Industrial Wastewater, Env-Ws 904	Applicable	Pretreatment standards for the discharge of industrial wastewaters into publically owned treatment works (POTW).	Discharge of treated groundwater and disposal of treated leachate must comply with these requirements.	The ROD cites Industrial and Municipal Wastewater Discharge Permits, Env-Wm 403 but that specific subsection could not be located. Env-Ws 904 is the only rule in the NH regulations as pertaining to industrial wastewater. If wastewaters or leachate were to be discharged to surface waters

Table 2. Somersworth Sanitary Landfill
Action-Specific ARARs

Medium	Requirement	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
					then federal and state NPDES standards would establish the discharge standards. If the wastewater and leachate were discharge to groundwater then the state groundwater discharge permit standards would apply.
Surface water	Surface Water Classifications, R.S.A. 485-A:	Applicable	Prohibits disposal to Class B waters unless treated to prevent lowering below classification.	Surface water discharge from any response action must comply with these requirements.	As cited in the ROD.
Surface Water	Surface Water Quality Regulations, NH Admin. Code Env-Wq 1700	Applicable	These rules establish water quality standards for the state's surface waters. Water quality criteria for toxic substances are established. [See Part Env-Wq 1703 Water Quality Standards and Env-Wq 1704 Alternative Site Specific Criteria]. Antidegradation standards are included in Env-Wq 1708. These	Standards will be used for monitoring to measure the performance and effectiveness of the remedial action in preventing contaminated groundwater from degrading nearby surface waters. Antidegradation standards require beneficial uses and the water quality to sustain existing beneficial uses to be maintained and protected by requiring discharges to surface water to meet the standards.	The Protection of Human Health and Protection of Aquatic Life regulations (Env-Ws Part 432) listed as chemical-specific ARARs in the ROD,are incorporated into Env-Wq 1703 by the State. For the remedy

Table 2. Somersworth Sanitary Landfill
Action-Specific ARARs

Medium	Requirement	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
			rules are applicable to point or non-point discharge(s) of pollutants to surface waters.		these standards are action-specific since they are to be used for monitoring. The antidegradation regulations (Env-Ws Part 437) listed as action-specific ARARs in the ROD have been incorporated into Env-Wq 1708 by the State.
Surface Water/ Groundwater	Water Discharge Permits, R.S.A. 485-A: 13	Applicable	Discharge or disposal into surface or groundwater must comply with effluent limitations	Remedial measures involving discharges to ground or surface water must comply with these standards. On-site discharges do not require permits.	As cited in the ROD.
Surface Water/ Groundwater	Enforcement of Classification, R.S.A. 485-A:12	Applicable	Any discharge to groundwater or surface water that lowers the quality of the water below its classification is prohibited.	Remedial alternatives involving the discharge to groundwater or surface water must comply with these standards.	As cited in the ROD.

Table 2. Somersworth Sanitary Landfill
Action-Specific ARARs

Medium	Requirement	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
Wells	Standards for Construction, Maintenance and Abandonment of Wells, NH Admin. Code We 600	Applicable for drinking water wells; Relevant and Appropriate for monitoring wells	This provision requires that wells be constructed, maintained, relocated, and/or abandoned according to these regulations. We 602.05 address restrictions on location wells in contaminated areas.	Wells used for the remedy will be created, operated, and closed in compliance with these standards. Well restriction standards shall be incorporated into institutional controls to prevent groundwater use until groundwater cleanup standards are achieved (permanent restriction within the compliance boundary for the landfill).	The ROD only cited well abandonment section We 604.
Air	Rules Governing the Control of Air Pollution, RSA Ch. 125-C, Air Pollution Control; Specific regulations at Env-A cited below.	Applicable	These provisions establish standards for the release of air emissions, including VOCs and hazardous air pollutants. Applicable standards include the most stringent of the following requirements: (1) New Source Performance Standards, (40 C.F.R. Part 60); (2) National Emissions Standards for Hazardous Air Pollutants (40 C.F.R. Part 61); and (3) New Hampshire State Implementation Plan limits. See RSA 125-C:6.	If operation and maintenance monitoring, future cap construction, or other remedial actions cause a release of contaminants into the air, emissions controls will be included in the remedial design to control emissions.	As identified in the ROD; except Emergency Procedures at Env-A 505.2(e); Malfunction of Air Pollution Control Equipment at Env-A 902; and Impact Analysis and Permit Requirements at Env-A 1305 are no longer present in the regulations.

Table 2. Somersworth Sanitary Landfill
Action-Specific ARARs

Medium	Requirement	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
Air	Ambient Air Quality Standards, NH Admin. Code Env-A 300	Applicable	These regulations set primary and secondary ambient air quality standards (equivalent to federal standards). The standards do not allow significant deterioration of existing air quality in any portion of the state for: particulate matter, sulfur dioxide, carbon monoxide, nitrogen dioxide, ozone hydrocarbons and lead.	If there are remedial processes that result in releases of contaminants into the air, air quality standards will be complied with during remedial activities.	Not cited in the ROD.
Air	Fugitive Dust, N.H. Admin. Code Env-A Part 1002	Applicable	Requires precautions to prevent, abate and control fugitive dust during specified activities, including excavation, maintenance, and construction.	Precautions to control fugitive dust emissions will be required during site remediation activities that could generate dust, such as maintenance of the landfill cap and monitoring well installation.	As cited in the ROD.
Air	Regulated Toxic Air Pollutants, NH Admin. Code Env-A Part 1400	Applicable	This regulation identifies toxic air pollutants to be regulated. These pollutants are also listed by EPA in 40 CFR 261. High, moderate and low Toxicity Classifications are established. Air toxics in these classifications are regulated when they occur in concentrations that cause adverse health	If there are remedial processes that result in releases of contaminants into the air, air quality standards will be complied with during remedial activities.	Not cited in the ROD.

Table 2. Somersworth Sanitary Landfill
Action-Specific ARARs

Medium	Requirement	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
			effects including increased cancer risk.		

Table 3. Somersworth Sanitary Landfill
Chemical-Specific ARARs

Medium	Requirement	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
Federal Requirements					
Groundwater/ Soil	EPA Risk Reference Dose (RfDs)	To Be Considered	RfDs are considered to be the levels unlikely to cause significant adverse health effects associated with a threshold mechanism of action in human exposure for a lifetime.	Hazards due to noncarcinogens with EPA RfDs are used to evaluate exposures to contaminated media. The groundwater treatment system and MNA will achieve groundwater cleanup levels over time. Use restrictions on the landfill and other remedial components will be permanent since contaminated waste will be permanently stored on site. Groundwater use restrictions beyond the boundary of the landfill will be maintained until the source area landfill is permanently capped and risks from groundwater located beyond the boundary of the landfill, identified under these standards, are eliminated.	The ROD does not cite TBCs.
Groundwater/ Soil	EPA Carcinogenicity Slope Factor	To Be Considered	Slope factors are developed by EPA from Health Effects Assessments and present the most up-to-date information on cancer risk potency. Slope factors are developed by EPA from Health Effects Assessments by the Carcinogenic Assessment Group.	Risks due to carcinogens as assessed with slope factors are used to evaluate exposures to contaminated media. The groundwater treatment system and MNA will achieve groundwater cleanup levels over time. Use restrictions on the landfill and other remedial components will be permanent since contaminated waste will be permanently stored on site. Groundwater use restrictions beyond the boundary of the landfill will be maintained until the source area landfill is permanently capped and	The ROD does not cite TBCs.

Table 3. Somersworth Sanitary Landfill
Chemical-Specific ARARs

Medium	Requirement	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
				risks from groundwater located beyond the boundary of the landfill, identified under these standards, are eliminated.	
Groundwater/ Soil	Guidelines for Carcinogen Risk Assessment EPA/630/P-03/001F (March 2005)	To Be Considered	Guidance for assessing cancer risk.	Risks due to carcinogens are assessed using these guidelines. The groundwater treatment system and MNA will achieve groundwater cleanup levels over time. Use restrictions on the landfill and other remedial components will be permanent since contaminated waste will be permanently stored on site. Groundwater use restrictions beyond the boundary of the landfill will be maintained until the source area landfill is permanently capped and risks from groundwater located beyond the boundary of the landfill, identified under these standards, are eliminated.	The ROD does not cite TBCs.
Groundwater/ Soil	Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens EPA/630/R-03/003F (March 2005)	To Be Considered	Guidance of assessing cancer risks to children.	Risks to children due to carcinogens are assessed using these guidelines. The groundwater treatment system and MNA will achieve groundwater cleanup levels over time. Use restrictions on the landfill and other remedial components will be permanent since contaminated waste will be permanently stored on site. Groundwater use restrictions beyond the boundary of the landfill will be maintained until the source area	The ROD does not cite TBCs.

Table 3. Somersworth Sanitary Landfill
Chemical-Specific ARARs

Medium	Requirement	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
				landfill is permanently capped and risks from groundwater located beyond the boundary of the landfill, identified under these standards, are eliminated.	
Groundwater	Safe Drinking Water Act (42 U.S.C. §300f *et seq.*); National primary drinking water regulations (40 C.F.R. 141, Subpart B and G)	Relevant and Appropriate	Establishes maximum contaminant levels (MCLs) for common organic and inorganic contaminants applicable to public drinking water supplies. Used as relevant and appropriate cleanup standards for aquifers and surface water bodies that are potential drinking water sources.	Used to establish cleanup standards for groundwater. The groundwater treatment system and MNA will achieve groundwater cleanup levels over time. Groundwater use restrictions beyond the boundary of the landfill will be maintained until the source area landfill is permanently capped and exceedances of these groundwater standards from groundwater located beyond the boundary of the landfill, are eliminated. Will be used as monitoring standards for groundwater beneath the landfill.	The ROD cites 40 C.F.R 141.11-16, however 40 C.F.R. Subpart B now only consists of 40 C.F.R. 141.11-13 and there is no 141.14-16. The ROD also cited 40 C.F.R 141.60-63 as MCLGs where they are actually MCLs. All of Subpart G is cited in this ESD (40 C.F.R. 141.60-66).

Table 3. Somersworth Sanitary Landfill
Chemical-Specific ARARs

Medium	Requirement	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
Groundwater	Safe Drinking Water Act (42 U.S.C. §300f *et seq.*); National primary drinking water regulations (40 C.F.R. 141, Subpart F)	Relevant and Appropriate for non-zero MCLGs only; MCLGs set as zero are To Be Considered	Establishes maximum contaminant level goals (MCLGs) for public water supplies. MCLGs are health goals for drinking water sources. These unenforceable health goals are available for a number of organic and inorganic compounds.	Used to establish cleanup standards for groundwater. The groundwater treatment system and MNA will achieve groundwater cleanup levels over time. Groundwater use restrictions beyond the boundary of the landfill will be maintained until the source area landfill is permanently capped and exceedances of these groundwater standards from groundwater located beyond the boundary of the landfill, are eliminated. Will be used as monitoring standards for groundwater beneath the landfill. Non-zero MCLGs are relevant and appropriate. MCLGs set at zero are to be considered.	The ROD cites 40 C.F.R. 141.50-63 as the MCLG regulation citation but the MCLGs are now within Subpart F, which incorporates 40 C.F.R. 141.50-55.
Groundwater	Health Advisories (EPA Office of Drinking Water)	To Be Considered	Health Advisories are estimates of risk due to consumption of contaminated drinking water; they consider non-carcinogenic effects only. To be considered for contaminants in groundwater that may be used for drinking water where the standard is more conservative than either federal or state statutory or regulatory standards. The Health Advisory standard for manganese is 0.3 mg/l.	Health advisories will be used to evaluate the non-carcinogenic risk resulting from exposure to certain compounds (e.g., manganese). The groundwater treatment system and MNA will achieve groundwater cleanup levels over time. Use restrictions on the landfill and other remedial components will be permanent since contaminated waste will be permanently stored on site. Groundwater use restrictions beyond the boundary of the landfill will be maintained until the source area landfill is permanently capped and risks from groundwater located beyond the boundary of the landfill,	The ROD does not cite TBCs.

Table 3. Somersworth Sanitary Landfill
Chemical-Specific ARARs

Medium	Requirement	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
				identified under these standards, are eliminated.	
State Requirements					
Groundwater	Drinking Water Quality Standards: NH Admin. Code Env-Dw 700	Relevant and Appropriate for MCLs and non-zero MCLGs only; MCLGs set as zero are To Be Considered	State MCLs and MCLGs establish maximum contaminant levels permitted in public water supplies and are the basis of State Ambient Groundwater Quality Standards (AGQS) that are applicable to site groundwater. The regulations are generally equivalent to the Federal Safe Drinking Water Act (SDWA).	Used to establish cleanup standards for groundwater when more stringent than federal standards. The groundwater treatment system and MNA will achieve groundwater cleanup levels over time. Groundwater use restrictions beyond the boundary of the landfill will be maintained until the source area landfill is permanently capped and exceedances of these groundwater standards from groundwater located beyond the boundary of the landfill, are eliminated. Will be used as monitoring standards for groundwater beneath the landfill.	ROD citation (Env-Ws 316 and 317) changed to Env-Dw 700 by the State.
Groundwater	New Hampshire Ambient Groundwater Quality Standards (NH AGQS) (Env-Or 603.03, Table 600-1)	Relevant and Appropriate	Establishes maximum concentration levels for regulated contaminants in groundwater which result from human operations or activities. NH AGQS are equivalent to MCLs for contaminants that have MCLs. NH AGQS have been established for site groundwater contaminants for which no MCLs are established, and are derived to be protective for drinking	Used to establish cleanup standards for groundwater when more stringent than federal standards. The groundwater treatment system and MNA will achieve groundwater cleanup levels over time. Groundwater use restrictions beyond the boundary of the landfill will be maintained until the source area landfill is permanently capped and exceedances of these groundwater standards from groundwater located beyond the boundary of the landfill, are eliminated. Will be used as	ROD citation (Env-Ws 410.05) changed to Env-Or 603.03, Table 600-1 by the State.

Table 3. Somersworth Sanitary Landfill
Chemical-Specific ARARs

Medium	Requirement	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
			water uses. The NH AGQS will be used for site contaminants where MCLs are not currently established.	monitoring standards for groundwater beneath the landfill.	
Groundwater	Groundwater Quality Criteria: NH Admin. Code Env-Or 603.01(a),(b),and (c)	Applicable	Wm-Or 603.01(a), (b) and (c) provide that groundwater shall be suitable for use as drinking water without treatment; shall not contain any regulated contaminant in concentrations greater than ambient groundwater quality standards established in Env-Or 603.03; and shall not contain any regulated contaminant at a concentration such that the natural discharge of that groundwater to surface water will cause a violation of a surface water quality standard established in Env-Ws 1700.	Used to establish cleanup standards for groundwater when more stringent than federal standards. The groundwater treatment system and MNA will achieve groundwater cleanup levels over time. Groundwater use restrictions beyond the boundary of the landfill will be maintained until the source area landfill is permanently capped and exceedances of these groundwater standards from groundwater located beyond the boundary of the landfill, are eliminated. Will be used as monitoring standards for groundwater beneath the landfill.	Cited as Action-specific in the ROD, but referred to as Criteria for Remedial Action (Env-Ws 410.24(a) and (b), which has been changed to Groundwater Quality Criteria (Env-Or 603.01(a), (b), and (c) by the State.
Groundwater	New Hampshire Department of Environmental Services Risk Characterization and Management Policy (Section 7.4(5))	To be Considered	Establishes GW-1 and GW-2 guidelines for contaminants in groundwater. GW-1 values are equal to the NH AGQS values for ambient groundwater. GW-2 values are based on a subsurface	Risks due to groundwater contaminants are assessed using these guidelines when more stringent than federal standards. The groundwater treatment system and MNA will achieve groundwater cleanup levels over time. Groundwater use restrictions beyond	The ROD does not cite TBCs.

Table 3. Somersworth Sanitary Landfill
Chemical-Specific ARARs

Medium	Requirement	Status	Requirement Synopsis	Action to be Taken to Attain ARAR	Changes from 1994 ROD
			vapor intrusion into buildings to calculate indoor air conservative risk assessments, and therefore apply to volatile contaminants only.	the boundary of the landfill will be maintained until the source area landfill is permanently capped and risks from groundwater located beyond the boundary of the landfill, identified through this guidance, are eliminated. Although vapor intrusion risks have not been identified to date, continued monitoring will be conducted to confirm that VOC contamination has not migrated into shallow groundwater where it could pose a VI risk.	
Soil	Soil Remediation Criteria, Env-Or 606.19	Applicable	Numeric soil remediation standards for organic and inorganic contaminants are established, with a provision for development of risk-based site-specific soil remediation standards.	Risks posed by contaminated soils and debris under the landfill covers will be controlled through operation and maintenance of the covers (and eventual capping of the landfill) and institutional controls.	Not cited in the ROD

ATTACHMENT 3

City Ordinance (Pages 1-10 and Section 10)

CITY OF SOMERSWORTH, NEW HAMPSHIRE

CHAPTER 19 - ZONING ORDINANCE

ADOPTED BY SOMERSWORTH CITY COUNCIL - AUGUST 30,1989

AMENDED:

MARCH, 1990
AUGUST, 1990
SEPTEMBER, 1990
JANUARY, 1991
APRIL, 1991 MAY, 1991
SEPTEMBER, 1991
MAY, 1992
SEPTEMBER, 1992
JULY, 1993
SEPTEMBER, 1993
FEBRUARY, 1994
APRIL, 1994
JULY, 1994
FEBRUARY, 1995
OCTOBER, 1995
JANUARY, 1996
JULY 15, 1996
JUNE 2, 1997 APRIL 6, 1998
JUNE 1, 1998
JANUARY 18, 1999
OCTOBER 19,1999
JANUARY 10, 2000
APRIL 17, 2000
AUGUST 14, 2000
DECEMBER, 2000
MARCH, 2001
MAY 21, 2001
OCTOBER 7, 2002
OCTOBER 21, 2002
MAY 3, 2004
MARCH 21, 2005
SEPT 6, 2005
APRIL 17, 2006
SEPTEMBER 5 2006
APRIL 16,2007
AUG 13, 2007
JAN 22, 2008
OCT 6, 2008
NOV 17,2008
DEC 15, 2008
FEB 2. 2009
FEB 17, 2009
OCT 25, 2010
DEC 13, 2010

CITY OF SOMERSWORTH

CHAPTER 19 – ZONING ORDINANCE

Amended March, 1990:
Pages 1, 2, 3,13,14, 52, 56,60 through 74. 83. 84, 85. Also, tables 4.A.1; 4.A.2; 4.A.3; 4.A.4; 4.A.5. Note #5; 5.A.1.;5.A.2.

Amended August, 1990:
Section 7, pages 16 thru 23.

Amended September, 1990:
Section 17, pages 63 thru 67. Table 5.A.1 and Table 5.A.1 Notes.

Amended January 7, 1991:
Section 20, page 89 - Zoning Board of Adjustment.

Amended April 1, 1991:
Section 18.C.4.e. - Political Signs.

Amended May 20, 1991:
Section 3.D., Page 5 - Commercial/Industrial District; Table of Uses, Tables 4.A.2; 4.A.3; 4.A.4; 4.A.5; 5.A.1.

Amended September 16, 1991:
Section 12, pages 46 thru 54 - Wetlands Conservation Overlay District.

Amended May 4, 1992:
Section 13, pages 53 thru 58 - Historic District.

Amended September 21, 1992:
Section 8, pages 24, 26 and 28 - Home Occupations.

Amended July 26, 1993:
Section 21, page 93 - Definitions; Table 4.A.4.

Amended September 7, 1993:
Section D.2., page 5 - Commercial/Industrial District.

Amended February 28, 1994:
Section 3. D.2., pages 5 & 6 - Commercial/Industrial District. Section 14, pages 60 thru 62 - Sexually Oriented Businesses (new). Section 18, page 7I on (19 pages) - Sign Regulations. Table of Uses - Table 4.A.5 (at end of chapter)

Amended April 4, 1994:
Table of Uses - Table 5.A.1 and Table 5.A.1 Notes.

Amended July 18, 1994:
Sections 11.B.4. & 11.B.5. (page 39); 11.B.8.f.& 11.B.9. (Pages 42 & 43); 11.c.(Pages 45 & 45A).

Amended February 21, 1995:
All pages renumbered to correspond with section numbers.
Table of Contents.
New Section added - "Section 15, Commercial Node District" (pages 15.1 thru 15.3).
Section 15 through Section 23 renumbered to Section 16 through Section 24.
Add Section 3.B.16. (page 3.3).
Add Section 3.D.8. (page 3.9).
Section 20.A.1. (page 20.1).
Section 20.B.3. (pages 20.1 & 20.2).
Section 20.B.3.h. (page 20.3).
Section 22 (pages 22.1 thru 22.9).
Tables 5.A.1&5.A.2

Amended October 2, 1995:
Added new Section 11 - Excavation of Earth Products (pages 11.1 to11.4)
Section 11 through Section 24 renumbered to Section 12 through Section 25.

Amended January 10, 1996:
Add Section 3.B. 15 (page 3.3).
Add new Section 16 - Recreation District (pages 16.1 thru 16.3).
Renumber all sections and pages after section 16 to reflect this change.
Section 24 (page 24.2).
Table 5.A. 1 Notes (page 8).

Amended July 15, 1996:
Delete Section 20 - Landscaping and Buffer Requirements, in its entirety.
Delete Section 22 - Circulation and Parking Regulations and replace with Section 21 – Circulation And Parking Regulations (page 21.1).
Renumber Section 23 through Section 26 to Section 22 through 25.

Amended June 2, 1997:
Section 8.D. (page 19:18)
Section 8.F.3. (page 19:18)
Section 8.F.6. (page 19:19) delete second paragraph
Table 4.A.3 & Note #6 (page 19:77)

Amended April 6, 1998:
Section 23 - Definitions (pages 68 and 70)
Table 4.A.3 and 4.A.5
Amended June 1, 1998:
Section 20 Sign Regulations - page 60.

Amended January 18, 1999:
Table 4.A.4 and 4.A.5

Amended October 19, 1999:

Added new Section 23 Naming of Public Streets and Rights of Way – pages 72-75

Renumbered Section 23 Definitions to Section 24 - pages 76-82. Renumbered Section 24 Administration & Enforcement to Section 25 - page 83. Renumbered Section 25 Interpretation, Conflicts & Separability to Section 26 - pages 84&85.

Amended January 10, 2000:
Section 8 Home Occupations - pages 18,19 & 21.
Section 10 Groundwater Protection District - pages 25 & 26.

Amended April 1, 2000:
Section 8 Home Occupations - pages 18,19 & 21.

Amended August 14, 2000:
Section 9 - Manufactured Housing District - pages 23 thru 24C. Table 4.A.5- pages 91 &92.

Amended December 11, 2000:
Section 12 - Flood Plain District - pages 32 thru 38A.

Amended March 19, 2001:
Section 3.A. - Districts - page 1.
Section 3.B.7. (deleted) - page 2.
Section 3.D.10. and 3.D.10.a. - (new) - page 7.
Section 24.NN. and 24.PP (delete) - page 79 and 80.
Tables 4.A.1. through 5.A.2 - pages 86 through 94.

Amended May 21, 2001:
Section 19.3.A. - Districts - page 1.
Section 19.3.B.14. - Purpose of Districts - page 3.
Section 19.3.D.11. - District Boundaries - page 7.
Section 19.3.D.12. - District Boundaries - pages 7 & 8.
Section 19.21. - Circulation & Parking Regulations - page 70.
Tables 4.A.1,4.A.2,4.A.3,4.A.4,4.A.5,5.A.1 - pages 85 thru 92.

Amended October 7, 2002:
Added new Section 24 Common Driveway Subdivision – pages 78 and 79.
Renumbered Section 24 thru Section 26 to Section 25 thru Section 27.

Amended October 21, 2002:
Table 4.A.3. – page 90

Amended 5/03/2004:
Section 7, Cluster Subdivision – pages 12 thru 17. Changed Cluster Subdivision to read Conservation Residential Development throughout Section.
Sections 20.D.2.a, 20.D.2.e, 20.D.2.f – page 68.

Section 20.D.4 – page 70.
Section 25, Definitions – pages 80 thru 84.
Added new Section 26, Telecommunication Facilities – pages 86 thru 93.
Amended Table of Uses (Table 4.A.3), page 98.
Amended Table of Uses (Table 4.A.5), pages 101 & 102.

Amended 3/21/2005:
Section 19.12.A. Flood Plain District, Applicability – page 34.
Section 19.14.H.2. Historic District, Appeal Process – page 52.
Section 19.20.B.13. Sign Regulations, Flashing Sign – page 61.
Section 19.20.C.2.e. Sign Regulations – page 63.
Section 19.20.C.4.a. Sign Regulations – Banner Signs – page 64.
Section 19.25.Y. Definitions, Dwelling Unit – page 82.
Section 19.25.DD. Definitions, Frontage – page 82.
Section 19.27.C. & 19.27.E. Administration & Enforcement – page 94.
Table 4.A.1. – page 96.

Amended 9/06/2005:
Section 19.25.JJ. Definitions, Height – page 83.
Table 5.A.2. – page 106.

Amended 4/17/2006:
Section 7, Conservation Residential Development – deleted in its entirety.
Section 24, Common Driveway Subdivision – deleted in its entirety.

Amended 9/05/2006:
Added New Section 29, Interim Growth Management Regulation, pages 88 & 89.

Amended 04/16/2007:
Section 25, Definitions, page 74.

Amended 04/16/2007:
Section 25, Definitions, page 75.

Amended 04/16/2007:
Table 5.A.1, Dimensional and Density Regulations, page 99.

Amended 08/13/2007:
Table 5.A.1, Dimensional and Density Regulations, Page 99.

Amended 01/22/2008:
Table 4.A.1, Table of Uses, Page, 90.
Table 4.A.2, Table of Uses, Page 91.
Table 4.A.3, Table of Uses, Page 92& 93.
Table 4.A.5, Table of Uses, Pages 95, 96 & 97.

Amended 10/06/2008:
Section 23 Naming of Public Streets and Rights of Way, Pages 69-71.

Amended 11/17/2008:
Replaced Section 29, Interim Growth Management Regulation in its entirety with new Section 29, Maximum Allowable Occupancy, Page 88.

Amended 12/15/2009:
Amend Section 19.3.D.8, Commercial Node District by deleting Section 19.3.D.8.a and Section 19.3.D.8.c and replacing with new Section 19.3.D.8.a and new Section 19.3.D.8.c, Page 7.

Amended 02/02/2009:
Replaced Section 20, Sign Regulation in its entirety with revised Section 20, Sign Regulations, pages 54-67.

Amended 02/17/2009:
Replaced Section 13, Wetlands Conservation Overlay District in its entirety with Revised Section 13, Riparian Wetland Buffer District Ordinance, pages 36-49.

Amended 10/25/2010:
Table 4.A.3 – Added OWHH to table and note #10 regarding OWHH's, page 104.

Amended 12/13/2010:
Amend Tables 4.A.3 and 4.A.4, pages 104 and 105.

CHAPTER 19 - ZONING ORDINANCE
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Section 10 Groundwater Protection District

19.10.A. AUTHORITY. In accordance with New Hampshire Revised Statutes Annotated (RSA) Chapter 4-C:22 III, as the same may be subsequently amended, the City of Somersworth hereby adopts the following Groundwater Protection District.

19.10.B. PURPOSE. The purpose of this ordinance is, in the interest of public health, safety and general welfare, to protect, preserve and maintain the existing and potential groundwater supply and groundwater recharge areas within the known aquifer from adverse development, land use practices or depletion, and to allow for the restoration of degraded ground water by the establishment of a "Ground Water Management Zone".[1]

19.10.C. LOCATION.

19.10.C.1. The boundaries of the Groundwater Protection District shall be the outermost edge of the out wash deposits of the "Lily Pond Aquifer", as designated in the "Report on Aquifer Definition Lily Pond Aquifer Somersworth, New Hampshire," prepared by BCI Geonetics, Inc., and included in the Water Master Plan Update dated June1984. The Ground Water Management Zone is designated by the Ground Water Management Zone Overlay Map included in the Preferred Remedial Action 100% Design and Demonstration of Compliance Plan prepared by Beak International, Inc. and Geo Syntec Consultants International, Inc.[1]

19.10.C.2. When the actual boundary of the Groundwater Protection District is in dispute by any owner or abutter actually affected by said boundary, the Planning Board, at the owner/abutter's expense and request, may engage a professional geologist or hydrologist to determine more accurately the precise boundary of said Groundwater Protection District.

19.10.D. APPLICABILITY.

19.10.D.1. All land use activities and development conducted within the Groundwater Protection District shall be regulated by the standards established herein.

19.10.D.2. The standards established herein shall constitute the rules of an overlay zone and shall be superimposed over other zoning districts or portions thereof. The provisions herein shall apply in addition to all other applicable ordinances and regulations. In the event of a conflict between any provision herein and any other ordinance or regulation, the more restrictive requirement shall control.

19.10.E. DEFINITIONS.

19.10.E.1. Animal Feed Lots. A plot of land on which 25 livestock or more per acre are kept for the purpose of feeding.

19.10.E.2. Groundwater. Water in the subsurface zone at or below the water table in which all pore spaces are filled with water.

19.10.E.3. Groundwater Management Zone (GMZ). The subsurface volume in which ground water contamination associated with a discharge of a regulated contaminant is contained. (State of NH Groundwater Protection Rules - Env - WS410.)[2]

[1] Amended 1/10/2000.

[2] Passed 1/10/2000.

19.10.E.4. Hazardous and Toxic Materials. Those materials that pose a present or potential hazard to human health and the environment when improperly stored, transported or disposed of. These materials include those listed in the New Hampshire Hazardous Waste Regulations. Third Edition. Appendixes 1-4, 1985, New Hampshire Dept. of Environmental Services, Concord, as the same may be subsequently amended.

19.10.E.5 Impervious Surface. A surface covered by any material (such as pavement, cement, roofing) that prevents surface water from penetrating the soil directly.

19.10.E.6. Leachable Wastes. Waste materials including solid wastes, sewage, sludge, and agricultural wastes that are capable of releasing waterborne contaminants to the surrounding environment.

19.10.E.7. Solid Waste. Discarded solid material with insufficient liquid content to be free flowing. This includes but is not limited to rubbish, garbage, scrap materials, junk, refuse, inert fill material and landscape refuse.

19.10.F. PROHIBITED USES. The following uses are expressly prohibited from the Groundwater Protection District:

19.10.F.1. Within the Lily Pond Aquifer[1]

19.10.F.1.a. The disposal of solid waste including landfills and sewage lagoons, excepting disposal of stumps and brush;

19.10.F.1.b. Storage of road salt or other deicing chemicals except in a property constructed shelter for use on site;

19.10.F.1.c. Dumping of snow containing road salt or other deicng chemicals;

19.10.F.1.d. Motor vehicles service or repair shops;

19.10.F.1.e. Junk and salvage yards;

19.10.F.1.f. Animal feedlots;

19.10.F.1.g Commercial or industrial handling, disposal, storage or recycling of hazardous or toxic materials or wastes; and

19.10.F.1.h Underground storage or petroleum or any refined petroleum product. All existing underground tanks, including those under 1,100 gallons, must be registered with the Somersworth Fire Department within six months of the enactment of this regulation. Existing tanks over 1,100 gallons are subject to Water Supply and Pollution Control Commission regulation, pursuant to New Hampshire Code of Administration No. W5411.

19.10.F.2. Within the Groundwater Management Zone:

19.10.F.2.a. The requirements, restrictions, and prohibition of the underlying Zoning District shall continue to apply to the extent that they are not inconsistent with the provision of this section; and[2]

19.10.F.2.b. Pumping of ground water from any well, trench, sump or other structure for residential, irrigation, agricultural or industrial purpose is prohibited.[2]

19.10.G. SPECIAL CONDITIONS. The following conditions shall apply to all uses in the Groundwater Protection District:

[1] Added 1/10/2000.
[2] Passed 1/10/2000.

19.10.G.1. A lot shall not be rendered more than ten percent (10%) impervious. A proposed development plan which will incorporate a stormwater drainage plan, approved by the City of Somersworth Planning Board and prepared by a professional engineer certified to practice in the State of New Hampshire shall be provided. The plan shall provide for the on-site retention and percolation of all development generated stormwater runoff from a ten (10) year storm. Furthermore, the stormwater drainage plan shall provide for the filtering of parking area runoff to remove oil, gasoline and other impurities prior to retention and percolation of the runoff;

19.10.G.2. Development or land use activities proposed within the Groundwater Protection District shall be connected to the municipal sewage disposal system and the municipal water system;

19.10.G.3. Any use retaining less than thirty percent (30%) of lot area, regardless of size, in its natural vegetative state with no more than minor removal of existing trees and vegetation shall require a special permit;

19.10.G.4. Mining operations, including sand and gravel removal, shall require an Earth Removal Permit, pursuant to New Hampshire Revised Statutes Annotated Chapter 155-E, which is herein incorporated by reference. Such excavation or mining shall in no case be carried out within eight (8) vertical feet of the seasonal high water table; and

19.10.G.5. The storage of petroleum or related products in a freestanding fuel oil tank within or adjacent to a residential structure which is used for the normal heating of said structure shall be permitted pursuant to the conditions outlined in subsection H below, and all applicable state regulations. All tanks shall be protected from internal and external corrosion and shall be of a design approved by the Somersworth Fire Department. All freestanding tanks shall be placed on an impermeable surface such as a concrete pad. No tank may be abandoned in place. A tank shall be disposed of after emptied of all hazardous materials if it has been out of service for a period in excess of twelve (12) months. The product and the tank shall be disposed of by the property owner as directed by the Somersworth Fire Department and all applicable state laws. All leaking tanks must be emptied by the owner or operator within twelve (12) hours after detection of the leak and removed by the owner and/or operator as per above.

19.10.H. ADMINISTRATION.

19.10.H.1. Development or land use activities proposed within the Groundwater Protection District that require a special permit, as provided in subsection G above, shall be reviewed by both the Planning Board and the Somersworth Conservation Commission. The Planning Board shall either approve, conditionally approve or disapprove a special permit only after it determines that the proposed land use development and/or activities comply with the purpose of this regulation. In making such a determination, the Planning Board shall give consideration to the simplicity, reliability and feasibility of the control measures proposed and the degree of threat to groundwater quality if the control measures failed.

19.10.H.2. Development or land use activities proposed within the Groundwater Protection District that require subdivision or site plan approval from the Planning Board shall also be reviewed by the Somersworth Conservation Commission. The Planning Board and the Conservation Commission shall verify that the proposed activity will conform to the provisions of this regulation ordinance prior to action by the Planning Board to approve, conditionally approve or disapprove the application.

19.10.H.3. The Building Inspector shall not issue a building permit for development or land use activities until such time as he/she verifies that the proposed activity will conform to the provisions of this ordinance. The Building Inspector may consult with the Planning Board and/or Conservation Commission as he/she deems necessary.

19.10.H.4. Land use activities that do not require the receipt of Panning Board approval or building permits shall nonetheless be subject to the requirements and standards established herein.

19.10.H.5. A hydrogeologic study may be required by the Planning Board and/or the Conservation Commission to investigate the impacts a proposed development or land use activity will have on an existing or future groundwater supply. A qualified professional hydroiogist or geologist shall be chosen by the City of Somersworth and the applicant for approval shall pay any and all costs incurred.

19.10.H.6. For all freestanding fuel oil tanks as permitted per Section 7. F., the property owner shall file with the City of Somersworth the following information prior to the installation of a tank:

19.10.H.6.a. The size of the tank;

19.10.H:6.b The type of tank;

19.10.H.6.c. The type of matérial being stored and its quantity;

19.10.H.6.d. The location of each tank on the premises, complete with a sketch map; and

19.10.H.6.e. The age of each tank.

19.10.I. ENFORCEMENT. If the Planning Board and/or the Building Inspector finds that any of the requirements and standards established herein are in violation, the Building Inspector shall order the owner, in writing, to make such corrections as he/she deems necessary to bring the development and activities into compliance with the provisions of this ordinance. Such order shall be complied with within twenty-four (24) hours of the original notice to the owner. Where the owner fails to comply with the order of the Building Inspector, a fine of one hundred dollars ($100) per day, or the maximum amount which is authorized by statute, may be levied against said owner. The fine shall be retroactive and shall begin to accrue on the date on which the property owner receives written notice from the Building Inspector that he/she is in violation of this ordinance.